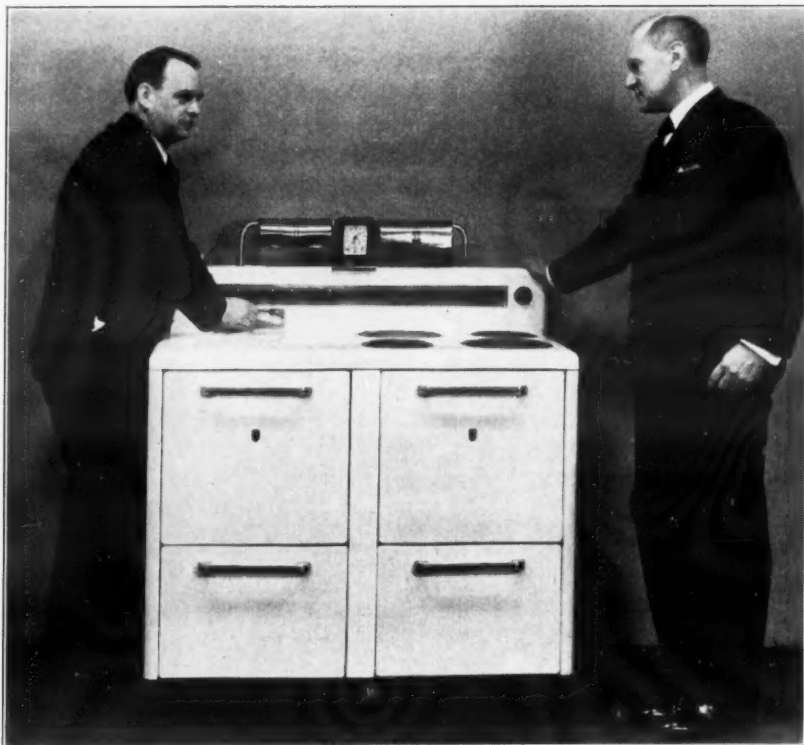


## 'Golden Jubilee' All-Electric Kitchen—a la Westinghouse



Westinghouse's "Golden Jubilee" merchandising program will be largely centered around the all-electric kitchen, an example of which is shown above. Refrigerator, range, and water heater have prominent parts in the kitchen, and are built with recessed pedestal bases to give the housewife plenty of "toe-room."

## Pages of Pictures

of special interest to Pacific Coast readers, will appear in the Feb. 19 issue, featuring the

## San Diego Exposition

At left, Westinghouse Vice President A. E. Allen learns about features of the new "Emperor" range from Reese Mills, manager of the range and water heater department.

## Banquet Table Groups At Frigidaire's 1936 Preview



The pictures include—Top: S. A. Long, president of S. A. Long Electric Co., Wichita, Kan., veteran distributor; B. B. Mott, field representative for Alfred P. Sloan, Jr., and J. J. Nance, manager of Frigidaire's air-conditioning activities. Center: L. C. Shannon, Frigidaire's foreign manager; William Baker, head of Baker Advertising Agency, Toronto, Frigidaire Canadian advertising counsel; and Roy E. Smithson, Frigidaire's commercial division manager. Bottom: Charles F. Kettering, G-M vice president in charge of research, and E. B. Newill, Frigidaire chief engineer.

## Distributors Make Their Plans After Hearing York's Story



Sidewalk conferences during York's recent distributor's meeting. Above: (1) Harry Lefkowitz and Norman Block of Venco, Inc., Greensboro, N. C. (2) Jack Schaefer and J. L. Rosenmiller, York sales promotion manager. Right: (1) Milton and Wayne Hartleip of Hartleip Equipment Co., Waterloo, Iowa, and George Forrstner of Electric Equipment Co., High, Iowa. (2) Frank Mead (center), York Chicago commercial manager; Herbert Kreisman of Advance Heating Co., Chicago; and H. P. Webster of Webster Engineering Co., Minneapolis. (3) Frank White, service engineer; D. L. Brillhart, J. M. Johnson of Careva Co., distributors in York.



## These Sparton Distributors and Factory Officials

Will Carry the 'Cold and Silent as a Winter Night' Story to Dealers & Salesmen throughout America





## REFRIGERATION NEWS

Registered U. S. Patent Office

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DETROIT, MICHIGAN, JANUARY 29, 1936

Copyright, 1936, by  
Business News Pub. Co.THREE DOLLARS PER YEAR  
TEN CENTS PER COPY**Air Conditioner Groups Will See Latest Products****Comfort Standards Topic At ASRE Meeting; 250 Firms in Show**

CHICAGO—Interest of the air-conditioning industry is centered in Chicago this week. The fourth International Heating and Ventilating Exposition is being held at the International Amphitheater, American Society of Heating & Ventilating Engineers is holding its forty-second annual convention at the Palmer House, and National Warm Air Heating & Air Conditioning Association is meeting at Hotel Stevens.

All branches of the heating, ventilating, and air-conditioning industry are represented at the exposition. More than 250 companies have exhibits. The exposition opened Monday, and will continue through Friday.

Air conditioning has an important place on the programs of the two association meetings. At its Tuesday (Concluded on Page 11, Column 3)

**Virginia Smelting Sets Up Test Apparatus to Show SO<sub>2</sub> Use in Conditioning**

NEW YORK CITY—Virginia Smelting Co. has installed at Electrical Testing Laboratories here a practical, operating demonstration unit designed to show that it is possible, using sulphur dioxide as a refrigerant, to cool and condition air, and to avoid any possibility of the alleged panic hazard by the use of an absorbent brine.

The unit will be shown in operation this week to engineers of the fire department and other New York City officials who are responsible for the proposed code of the city relating to refrigerating and air-conditioning systems, according to F. A. Eustis of the Virginia Smelting Co.

The proposed procedure contemplates the placing of the refrigerating apparatus in a properly segregated machinery room provided with adequate ventilation. The only contact from the machinery room to the air washers or coolers, or to the space to be air conditioned or cooled, will be through the circulation of a brine or cooling solution.

Virginia Smelting Co. officials will claim that they have secured at least two cooling solutions or brines which will chemically absorb substantially more than the total amount of refrigerant used in the whole system, and absorb it in a manner so that the brine or cooling liquid will not itself thereafter become either corrosive or bad smelling, or produce any condition that could possibly cause a panic hazard.

One of the solutions will consist of (Concluded on Page 17, Column 1)

**Moister Is Appointed By Universal Cooler**

DETROIT—Appointment of George Moister to the position of director of advertising for Universal Cooler Corp. has just been announced by F. S. McNeal, president and general manager of the organization.

Coinciding with the announcement, H. E. Markland, domestic sales manager, also announced the appointment of three regional sales managers to handle household refrigerator sales: H. F. MacGrath, eastern, with headquarters in New York City; H. A. D'Arcy, central, with headquarters in Chicago; and L. V. Ryan, southern.

The new advertising manager, Mr. Moister, formerly held similar positions with Westinghouse and Kelvinator. He entered the refrigeration field in 1923, as a Kelvinator retail salesman in Chicago, and has covered practically every section of the country during the past 12 years.

Mr. MacGrath's new activities are akin to the plan he originated several years ago, when he organized the Major Appliance Corp., and, as its (Concluded on Page 9, Column 4)

**Universal Cooler to Sell Units Direct To Dept. Stores**

DETROIT—Universal Cooler Corp.'s 1936 line of household electric refrigerators, announced this week, comprises three models of 4-, 6-, and 8-cu. ft. capacity, and includes a number of "plus" convenience and economy features, chief of which is a new "double" down-draft cooling, which eliminates visible accumulation of frost on the evaporator coils.

The new Universal Cooler line, according to H. E. Markland, domestic sales manager, will be marketed direct to department stores and dealers throughout the country.

Models are smartly styled, with streamline contours enhanced by double decorative beads through the center of front door and panel. Hardware is satin-finish, and is featured by a distinctive touch-bar, push-pull, self-cocking type door handle on the two larger units.

Model UC-4, or the "4 Plus," as it is called, is the smallest unit in the line. It has a storage capacity of 4.3 cu. ft., and a shelf area of 8.26 sq. ft. It has an ice-cube-making (Concluded on Page 22, Column 3)

**Coldspot Restyled; Prices Are Raised**

By Phil B. Redeker

NEW YORK CITY—Shown to the buying public for the first time last week at its Park Ave. showroom here was Sears, Roebuck's 1936 "Coldspot" electric refrigerator line, with new cabinet styling by Raymond Loewy, more "gadgets," and higher prices than last year's line.

The 6-cu. ft. "regular" model in the 1936 line will retail at \$149.50 and the 8-cu. ft. model at \$169.50. These prices are for models with Dulux exterior finish, and are \$10 higher than the retail prices on similar-sized Coldspot models last year.

For these models finished through (Concluded on Page 9, Column 3)

**Nema Opens Mid-Winter Meeting on Feb. 3**

NEW YORK CITY—Annual mid-winter conference of the National Electrical Manufacturers Association (Nema) opens here Monday, Feb. 3, at the Waldorf-Astoria hotel here and continues through Friday.

There will be one general meeting of the association in the form of a dinner meeting Thursday. Meetings of the various sections and groups will be held throughout the five days.

**How to Send Letters to the Editor of the News Enroute Around the World**

Letters and cablegrams to George F. Taubeneck, Editor of ELECTRIC REFRIGERATION NEWS, now on a 6-months trip around the world, may be addressed to him during the next few weeks at the following points on his itinerary:

**AT SYDNEY, AUSTRALIA**

Mail to arrive Feb. 22 to March 6. Sailing date: March 7, S.S. Marella. In care of F. E. Hansen, F. C. Lovelock, Ltd., 235 Clarence St., Sydney, Australia. (Cable address: "Lovelock-Sydney.")

**AT SOERABAYA, JAVA**

Mail to arrive before March 24. In care of T. P. Timmerman, General Netherland-Indies Electric Co., Soerabaya, Java, D.E.I.

**AT BATAVIA, JAVA**

Mail to arrive before March 26. In care of L. H. C. Beerstecher, International General Electric Co., Prinsen Straat 21, Batavia, Java, D.E.I.

**AT SINGAPORE**

Mail to arrive before April 1. In care of H. C. Faxon, The Borneo Co., Ltd., Finlayson Green, Singapore, Straits Settlements.

**Refinements in Style and Unit Made by Norge**

DETROIT—Refinements in line, contour, and construction, rather than fundamental changes, characterize the nine models in Norge's 1936 line of household electric refrigerators, announced this week.

In line with its "all-products" policy, the company also announced a new line of gas ranges, electric and gas-line washers, and electric ironers.

The models in the 1936 refrigerator line range in size from 2- to 8.25-cu. ft. net storage capacity, and are grouped into three general classes. In the first group are the T-20, a lift-top unit of 2-cu. ft. size, and the S-31, a model of similar height but with front-opening door.

In the second or "economy" group are models E-32 and E-42, units of 3.25- and 4.25-cu. ft. capacities, minus many of Norge's convenience features, and designed primarily to meet "price" competition.

The third group includes five models, sized from 4.25 to 8.25 cu. ft., and available in either lacquer or porcelain exterior finish. On this line the company's refinements and convenience improvements for 1936 have (Concluded on Page 9, Column 1)

**Lipman Markets New Unit Cooler Line**

BELOIT, Wis.—Compact in design, and incorporating a number of refinements in construction, new lines of Lipman unit coolers for comfort cooling and product cooling are being introduced by General Refrigeration Sales Co. here.

The unit coolers are available for use with Freon or methyl chloride.

Evaporator core of these units is formed by copper fins sweated to copper tubes forming a metal-to-metal bond. Fins are spaced 4 in., the manufacturer claiming that this allows been concentrated.

Harmony and simplicity of cabinet (Concluded on Page 10, Column 5)

**Lauer Elected York Vice President**

YORK, Pa.—Stuart E. Lauer, general sales manager of York Ice Machinery Corp., was elected vice president in charge of sales at the annual board of directors meeting of the organization last week.

Officers re-elected at the meeting were William S. Shipley, president; E. A. Kleinschmidt, vice president and secretary; and S. J. Shipley, vice president and treasurer.

**'Sales-Engineered' Is Gibson Claim For New Line**

GREENVILLE, Mich.—Featuring simplified styling and design, Gibson Electric Refrigerator Corp. has brought out a "sales-engineered" 1936 line of household refrigerators in six models, ranging from 4- to 8-cu. ft. net storage capacity.

The new cabinets have been styled to meet the demand for practical, simplified design, where beauty is achieved through simplicity of line and balanced proportions, rather than through intricate or elaborate handling of appointments.

In the lower priced "S" or Standard line, three models are available, of 4-, 6-, and 8-cu. ft. net capacity, with the conventional type of evaporator coil. The 6-cu. ft. model is also available with the Gibson "Magic Freezer Shelf," at a slightly higher price.

CB or "Custom Built" models in the Gibson line of 1936 are three—of 5-, 6-, and 7-cu. ft. sizes. All these models have the Freezer Shelf, and may be had either in lacquer or porcelain exterior finish.

Arrangement of the Freezer Shelf in (Concluded on Page 22, Column 3)

**G-M Forms Corp. to Sell Conditioners**

NEW YORK CITY, Jan. 29—Organization of a new company for the marketing of year-round air-conditioning and automatic heating products, to be known as Delco Frigidaire Conditioning Corp., was announced today by President Alfred P. Sloan, Jr., of General Motors Corp.

Formation of Delco-Frigidaire Conditioning Corp. places under one direction the marketing of summer air-conditioning equipment, manufactured by Frigidaire Corp., and of winter air-conditioning and automatic heating equipment, manufactured by Delco Appliance Corp. Manufacturing of the different types of air-conditioning products will remain with Frigidaire and Delco Appliance at their plants in Dayton and Rochester, N. Y. General headquarters of the new (Concluded on Page 10, Column 4)

**Kinetic Chemicals Victor In German Patent Suit**

WILMINGTON, Del.—Officials of Kinetic Chemicals, Inc., here have been notified that German patent authorities have recently rendered a third adjudication to the effect that the Frigidaire Corp. and its general licensee, Kinetic Chemicals, are entitled to the broadest possible protection on its fluoro refrigeration compounds (Freon, F-114, etc.).

In the first adjudication, a patent application corresponding substantially to United States Patent No. 1,833,847 granted to Thomas Midgley, Jr., et al on refrigerating processes using fluorine compounds as refrigerants was filed in the German Patent Office, and a favorable decision allowing broad claims was given by the application department of the German Patent Office, offering to grant the patent without limitation.

Thereafter, a leading chemical (Concluded on Page 9, Column 4)

**Wittenmeier Distributes Kelvinator Line of Air Conditioners**

CHICAGO—Wittenmeier Machinery Co., one of the country's oldest manufacturers of commercial refrigeration machinery, has been appointed distributor for Kelvinator air-conditioning equipment in the Chicago territory. Stephen Schotes is president of the organization and E. F. Bergman is vice president.

Entering the refrigeration business in 1903 with the first carbonic compressor made in this country, Wittenmeier Co. made its first air-conditioning installation in one of the city's hotels in 1908. Since then the company has made many installations throughout the country, specializing in hotel and theater jobs.

**Dept. Stores Set For Big Gain in Appliance Sales****Executives at Meeting Told Sales Will Show Increase; FHA Plan Argued**

NEW YORK CITY—Department store executives in convention at the National Retail Dry Goods Association annual meeting here last week heard predictions of better business this year (particularly in home furnishings); New Deal measures affecting appliance retailing attacked and defended; and new methods in appliance selling described.

Frigidaire, General Electric, and Westinghouse exhibits were among the largest at the convention. The 1936 General Electric and Westinghouse refrigerator lines dominated the respective exhibits of these companies. Frigidaire had a display (in which 1935 models were used) which demonstrated low operating costs.

A. O. Eberhart, special assistant to the Federal Housing Administration, expressed a belief that an act of Congress extending Title I of the National Housing Act will be passed at the

**Refrigerators Handled by 89% of All Dept. Stores Selling Appliances**

NEW YORK CITY—A survey recently completed by the National Dry Goods Association, directed by Merchandise Manager Herschel Lutes of the J. L. Hudson Co., shows that the electrical refrigerator is the most widely carried major appliance in department stores, and that it is by far the best seller of the group.

Electric refrigerators are carried by 89 per cent of the stores handling major appliances, and 62 per cent of these rank the electric refrigerator as the best-seller.

Another fact uncovered by the survey is that major appliances now constitute a separate department in 75 per cent of the stores, as compared with 1931 when more than half the stores reporting treated appliances as part of the home furnishings department.

present session of Congress "without even any debate," in an informal discussion following his talk before department store executives.

Title I is that section of the act which provides for modernization loans, under which refrigerators are eligible.

On the other side H. R. Teubner, credit manager, Strawbridge & Clothier Co., Philadelphia, in speaking before the instalment selling session, declared that "extension of low-cost terms to three years by the FHA program will leave us with a tough legacy when the FHA goes out of existence, as merchants will probably be forced to keep these terms."

A. W. Zelomek, economist for the International Statistical Bureau who recently completed a survey of the probabilities for the home furnishings field for 1936, predicted an increase of 17½ per cent in the amount of goods which will be sold in the home furnishings field, with an even higher dollar volume because of higher prices.

Prices will harden under expanding demand, he said, and although electrical appliances have been marked (Concluded on Page 6, Column 1)

**Birmingham Conditioning Bureau Inspects Job**

BIRMINGHAM, Ala.—Members of the Air Conditioning Bureau of Birmingham opened their 1936 selling season with a luncheon and an inspection of the 350-ton installation in the new \$1,250,000 department store of Loveman, Joseph & Loeb. Details of the installation were explained to the 30 dealers and architects present by J. C. Cunningham, sales engineer for Shook & Fletcher Supply Co., Carrier Engineering Corp. dealer.

Bureau estimates, compiled by Leo (Concluded on Page 10, Column 1)



# Around the World

With George F. Taubeneck

Arrive June 14, 1936, at the International Congress of Refrigeration The Hague, Holland

Start Jan. 8, 1936, from the home of Electric Refrigeration News Detroit, Mich., U.S.A.

Europe  
(May 15-July 1)  
London, England  
The Hague  
Stockholm  
Vienna  
Leipzig  
Berlin  
Paris, France  
Marseilles  
Milan

India  
(April 14-25)  
Bombay  
Calcutta  
Rangoon  
Penang  
Singapore

Java  
(March 24-26)  
Batavia  
Semarang  
Soerabaya

Jackson, Mich.  
Chicago, Ill.  
St. Louis, Mo.  
Tulsa, Okla.  
Dallas, Tex.  
El Paso, Tex.  
Phoenix, Ariz.

San Diego  
Los Angeles

Honolulu, Hawaii  
Suva, Fiji Islands  
Auckland, New Zealand

Australia  
(Feb. 22-Mar. 19)  
Sydney  
Brisbane  
Townsville  
Thursday Island  
Darwin



The above picture, taken by Robert Nixon, assistant business manager of the News, who accompanied the editor to California, shows Mr. Taubeneck typing his story on a portable typewriter at a roadside stop in the "wide open spaces" of Texas. The two friendly dogs just happened to be there and are not a part of the editor's baggage.

Mr. Taubeneck sailed from San Francisco last Saturday afternoon (Jan. 25) for Honolulu, Hawaii. He is making a 6-months' trip around the world to study export markets and the progress of refrigeration and air conditioning in other countries.

He is a delegate to the International Congress of Refrigeration to be held at The Hague, Holland, next June and will read a paper on the development of household electric refrigeration in the United States.

## Concerning Bob Nixon

This automobile trip across the continent is being made in the company of an interesting young man named BOB NIXON, who is doing a fine job as assistant business manager of ELECTRIC REFRIGERATION NEWS—a good position for a young man just recently out of college (Duke University).

Bob is from the deep South, suh (Rome, Ga., to be exact), and is an embodiment of the graces so long associated with southern gentlemen—chivalry, courtesy, polish, and all the rest of it.

He never loses his temper, gets irritated, or fails to contribute a touch of good humor to any occasion. That makes him almost an ideal traveling companion.

Bob and I have what we think is a pretty slick system. In the daytime Bob drives, and I attempt to punch out my stories on a portable typewriter balanced on my knees.

Occasionally I grab the little camera and shoot an interesting scene from the car, which is generally moving along at 80 or so.

Then at night Bob sleeps and I drive. When we finally give up and turn in at a hotel, we go to bed discussing the New Deal (Bob is a staunch southern Democrat, and of course you know how I feel about the present administration), the refrigeration business and why it is like it is, whom we've met and what we've seen during the day, and why Bob should get married and I shouldn't.

In the early morning I sleep, and he writes post cards and an occasional long letter.

When we come to a big city, we pause for a day and interview the local refrigeration bright lights. Then on the winding highway again we go for a day-and-night jaunt.

## Gorgeous Ozarks

During the first part of the trip Bob felt like somebody had handed him a package—full of lemons. All through Michigan we battled blizzards, desperately frigid weather, low visibility, and icy pavements which looked and reacted more like skating rinks than highways.

We swooshed into some pretty skids; and once after we had cracked-the-whip through a wire fence, Bob was almost ready to give up and go back home on a nice, warm, comfortable, safe railroad train.

But after we passed St. Louis and began to climb into the Ozark mountains, he felt better. Much, much better.

The ice and snow passed out, we saw the sun—and later the moon and stars—for the first time since last September, and the hills were full of beauty.

When you call the Ozarks "gorgeous" you are using a much-over-

worked word; but never will you use that word more accurately.

## Purple Mountains

Driving along a highway that winds up and up, down and around, you float into vista after vista of sheer cliffs and precipices jutting out in bold relief against autumnish sepia-foliaged hills which curve more gently; and behind you and beyond them all a hazy, undulating line of purple mountains.

Before we saw the Ozarks, it was our belief that purple mountains were simply a fancy notion invented by Zane Grey. But, by gosh, it's true.

Bob and I both felt very much at home among the people of the Ozarks—at least those we contacted at filling stations, mountain inns, restaurants, and roadside stands.

The men talked, walked, procrastinated, and even seemed to think like the men back in Marshall, Illinois, my old home town. Whereas the delicate, soft-spoken, brown-eyed, modestly friendly girls made Bob feel homesick.

"She's the purties thang," Bob would say when he saw one.

No place did we find any refrigeration in evidence. In the restaurants, inns, and roadside stands, all we saw was big, wooden McCray ice boxes.

Because of the hills and curves, you can't make exceptionally fast time through the Ozarks; but the drive will reward you with immediate visual thrills and priceless memories of nature's artistry.

## Big Saturday Night In Claremore, Okla.

Faces changed, the countryside changed, and the atmosphere changed when we came to Claremore, Oklahoma.

This was the West, not the South—almost the West of the storybooks and pulp-paper magazine thrillers. Ten-gallon hats, buckskin jackets, never-pressed trousers, leather-tanned faces, spittin' tobacco, two-story commercial buildings, and a hotel lobby (the Sequoyia) like those you've seen dozens of times in the Tom Mix and Hoot Gibson type of movies.

Most impressive to us, however, was the predominance of Indian facial types. Straight black hair, high cheek bones, strong noses, slightly protruding eyeballs, and impassive facial muscles (except among the women, some of whom are quite animated and almost flamboyantly attractive) are to be seen everywhere.

There are a few dingy saloons, which we looked into without event, the aforementioned lobby at the Sequoyia (named after the Indian who invented the Cherokee alphabet), a tiny movie house, and a couple of lively open-all-night restaurants.

No music anywhere, save for an occasional woman uncorking a vocal bar or two of "And the Music Goes 'Round and Around." No drunkenness, and the only hilarity being registered came from the town's Rotarians and their slicked-up wives, just back from a big party.

For our first experience with the Wild West, Saturday night in Claremore was disappointingly tame. It looked the part, but didn't act it. Bob and I had sandwiches and cocoa, and went to bed. No shots rang out during the early morning hours to disrupt the first good sleep we'd had in at least two weeks.

## Will Rogers and Radium Baths

Claremore hasn't made up its mind whether it is prouder of its most famous citizen, the late beloved WILL ROGERS, or its "radium water."

The late lamented cowboy-humorist-philosopher, newspaper paragrapher, political commenter, and high-salaried star of the Ziegfeld "Follies," the movies, and the radio—undoubtedly one of the greatest and truest Americans in our history—has been honored in Claremore by having had dedicated to him the Will Rogers Hotel and the Will Rogers Municipal Airport.

At the dedication of the latter, Rogers was present with WILEY POST, the pilot with whom he met his death in Alaska, and HAROLD GATTY, Post's companion on a globe-encircling flight. It is neatly laid out, and modern in every respect, although we heard tell it was "built in four days."

We stayed at the Will Rogers Hotel, and found it quite comfortable, especially for a town the size of Claremore (population 5,000). Only objection: It is equipped with those irritating water faucets which will not stay on unless you hold them with a firm grip.

## The North Isn't Mentioned

Slogan of the hotel is: "Eastern atmosphere, western welcome, southern hospitality." Bob noted with some satisfaction that the North didn't seem to have an attribute worth including.

Concerning the hotel, Will once wrote (the hotel itself displays this): "I sure use to envy General Grant and Jesse James when they had smokeless cigars named after 'em, but here I am sitting in the brand-new most up-to-date hotel in the Southwest—the Will Rogers in Claremore."

"It's six stories high, that's higher

than any hotel in London and its got more baths in one room than Buckingham Palace, where the King lives, has all put together.

"Got more elevators than the Rice Hotel in Houston had during the Democratic Convention and these run. Cracked ice and White Rock in each room—that's standard equipment."

"Here is the town you take those wonderful baths that cure you of everything but being a Democrat. I know how proud Christo Columbus must have felt when he heard they named Columbus, Ohio, after him. Yours, Will Rogers."

Now as to "radium water." This artesian-well water is naturally endowed with chlorides of sodium, calcium, magnesium, and lithium; and carbonates of calcium, magnesium, and iron.

Claremore's business men proudly tell you that there is no Indian legend connected with "radium water"—nothing mythical or mysterious. It simply bears mineral salts which aid the alleviation and cure of many ills.

It's said to be an effective cure for alcoholism, also skin diseases, acidosis troubles, and the rheumatic family. But don't ask us; we've never had any of those ailments, nor did we knowingly drink any "radium water."

The well from which "radium water" springs was dug near Claremore in 1903, by men who hoped it would spout oil and gas. At a depth of 1,100 feet they struck this mineral water which, to their cussworded disgust, came forth with such tremendous pressure that they had to abandon their hopes of bringing in an oil well.

It turned out, though, more profitably than they thought it would. Today it supplies six busy "bath houses" which are heavily patronized by the type of people who clutter up Miami Beach.

You can't get much out of the inhabitants about WILL ROGERS. Apparently he was a phenomenon they never have figured out.

As a matter of fact Will was born "up the road apiece" (11 miles) in Oligah—a name which would be a natural tag for Claremore were it not for the baths and their customers.

Note to GEORGE MASON and HENRY BURRITT: Lake Claremore, just outside the city, has been stocked with more than three-quarters of a million of bass, channel cat, and crappie. It also boasts about 20 miles of rustic shoreline, old-time "swimmin' hole" facilities, occasional motor boat races—in addition to furnishing the city's water supply.

Also of interest is an Indian mound where the Osages fought their last battle (it has long since been picked clean of relics, so don't go lookin'), and the Oklahoma Military Academy, where for years parents sent their kids in the hope that they'd meet Will Rogers. It's a good school, too; handsome, well-laid-out, and many times honored by the government.

## Sorry Mr. Evers

After leaving St. Louis, we decided to change our route to include Dallas and El Paso, Texas, and to go a shorter route to these cities through Tulsa, Oklahoma.

That meant we missed Oklahoma City (would have arrived there on a Sunday anyhow) and Denton, Texas.

At Denton we meant to stop and see A. F. EVERS, Jr., a lifetime subscriber to and friend of the News, who had kindly offered us both an interview and a clean bed.

Sorry we missed you, Mr. Evers, and you people in Oklahoma City. Catch you next time. In the meantime, keep your subscription renewed!

## Tulsa—A Live City

Arriving in Tulsa, Oklahoma, on a Sunday noon, it seemed to us that

here was a city which showed less of the depression's ravages than any city we'd seen in a long time.

In fact, the depression seemed to have missed the city entirely, just as a tornado will come along sweeping everything before it until it comes to a choice barn or neat church, around which it will execute a neat corkscrew turn.

Oil has made Tulsa, and the city has sprung up like an oil well comes in—all-of-a-sudden. In 10 years, we heard. That means the buildings are new, the streets good, the conveniences modern, and the people democratic and hustling.

Tulsa is all of these. Its skyscrapers rise suddenly, dramatically, and startlingly out of a bare plain. Its people are just as brisk and upstanding. In addition, it is exceptionally clean. Food and service were excellent where we stopped.

## Tending to Business

People seem to tend to their own business; and business is good, thank you (perhaps there is more than just a passing relationship between those two statements).

Being Sunday, we didn't find any refrigerator dealerships open—at first. So we cruised around the streets, snapping pictures of all the dealerships we could find. Saw Frigidaire, Norge, Fairbanks-Morse, Grunow, Kelvinator, General Electric, and Electrolux refrigerators on display.

Also we spied several dealerships which had apparently gone out of business—and recently, too—including my old friend, ALBERT AHRENS.

## Good Crosley Dealer

While we were taking pictures of the Mason Electric Co., which displayed Crosley and Leonard refrigerators, a natty young man came up from nowhere and asked what we were doing, and why.

He turned out to be R. EISENHARDT of the dealership we had just snapped. Soon up drove M. L. MASON, a pleasant man in, we should judge, his late thirties—the proprietor.

In 1935 this dealership (which has 14 sub-dealers) sold some 300 Crosleys! The Leonards didn't fare so well, although it was a popular line in 1934.

They had heard tell, though, that Leonard was going to have a "hot" line next season. Hadn't picked up any rumors about the 1936 Crosleys, but then they avowed you could always depend on Powell to turn up with something new.

Was the weather always like this? (We had doffed our topcoats and hats, and taken off our side-curtains). No, it wasn't, they admitted. Occasionally there were freezing spells; but always they ended quickly, and it became mild again.

## Won't Touch the F.H.A.

Mr. Eisenhardt used to sell Crosley and Grunow refrigerators in Buffalo, N. Y., but had come out here two years ago because he was tired of turning his coat collar up and sloshing around in the ice and snow.

Beatnest thing, though. In Buffalo he could sell refrigerators the year around. Yes, sir. Right through the winter. But now you take Tulsa, that was different. Business was seasonal here, for fair.

"I bet you," grimaced the indignant Mr. Eisenhardt, "that six refrigerators haven't been sold in Tulsa since the last of October!"

But he liked Tulsa, though. Great place. And, for an enterprising and active salesman like Mr. Eisenhardt, we'll bet it is.

Frigidaire probably does the biggest business in Tulsa, they supposed. (Concluded on Page 4, Column 1)

## Editor Studies Window Displays of Tulsa Refrigerator Dealers



It was Sunday and no dealers were open when George Taubeneck visited Tulsa, so he caught up on some of his back writing, and inspected refrigerator displays in the windows of Haeske's Radio-Music Co., General Service Co., G-E dealer, and Lloyd Electric Co.



*We've got the range for '36*



Acme Newspictures, Inc.

# OPEN FIRE!

**FRIGIDAIRE GOES INTO ACTION WITH  
THE OPENING GUN  
OF ITS GIGANTIC CAMPAIGN FOR 1936**



• Frigidaire's field organization, largest in the industry, is on the move toward its most successful selling season in history!

In 38 dramatic conventions now going on from coast to coast, Frigidaire is presenting to its 20,000 dealers and salesmen the sensational Frigidaire for 1936—a product utterly new, stunningly beautiful, crammed full of powerful sales appeal in every respect. New campaign strategies are being introduced—dynamic, forceful new plans for action that overlook nothing to insure your biggest Frigidaire year! The men who have seen these spectacular new products and the powerful, compelling sales program are confident of sweeping victory. They agree that the challenge "You'll do Better with Frigidaire in '36" is no idle boast!...Frigidaire is going into action, and its greatest record-breaking year lies ahead! FRIGIDAIRE CORPORATION, DAYTON, OHIO

*You'll do better with Frigidaire in 1936!*



## Around the World

With George F. Taubeneck

(Concluded from Page 2, Column 5)  
General Electric was now being sold through a department store, since Albert Ahrens lost his business. Kelvinator was going good. And Electro-lux, too—because rates for natural gas are so low in Tulsa.

They have refused to do business under the FHA plan—won't touch it. Too much red tape. Unsound, anyway; and is going to get somebody into a lot of trouble some day.

### Black Gold

It has always seemed to this writer that the quickest, surest, and easiest way to get rich is to strike oil. The only two "rich" men in Marshall got theirs that way, and we have known other examples.

Well, it seemed to us, as we drove through the highly diverting country from Tulsa to Dallas, Texas, that a flock of people must have become frightfully wealthy down here. At no time were we out of sight of an oil rig, an oil well, oil tanks, tank cars, or an oil refinery.

The land is quite unusual. Substantially it is plainsland, but rising out of the flatness are frequent small ridges. They aren't knolls or knobs; nor are they hills. They are moraine-like mounds, those folds in long-eroded land which are almost inevitable signals of oil deposits.

Through these ridges, and through the scattered procession of oil derricks, tanks, and refineries, the road does a RED GRANGE or a DUTCH CLARK.

### Natives Ride Motorcycles

It turns, twists, cuts back, dodges, reverses its field, and swings its hips in a most baffling fashion, forcing the motorist to change his pace often lest he be thrown for a loss.

And speaking of halfbacks, Bob steered us through some Texas steers at a dizzy pace, a feat which was an even bigger thrill than our loop-the-loop through the fence up in Michigan.

The steers came rambling out onto the highway too suddenly for Bob to do anything but careen through them. I could smell meat on the table, but Bob miraculously ran the broken field without breaking any bones or fenders.

We took a lot of pictures from the car on this trip, so that you uplanders can see what real oil country looks like.

The natives know how to negotiate this land of meandering streams and winding roads. They ride motorcycles.

### Boots and Saddles

A 60-mile detour—first of many to be encountered through the Southwest, which seems to have been allotted plenty of PWA money for highway reconstruction—took us through genuine cattle country.

We even saw two or three booted and spurred cowboys—the genuine article—riding along the lonely way.

It was rough, uncut country, vast and empty, still and majestic.

Long after the bright stars had punctuated a mighty big sky, we came to a crossroads border town by the name of Coalgate (we wondered whether it was named after the college or the toothpaste).

Issuing from a yellow-lit cafe was a blary version of "The Music Goes 'Round and Around."

### Snapshots of Sin

We went in, and saw: Ammonia blondes, an exceedingly cute and clever little girl who Shirleytemped all over the place, wide-brimmed hats, suede jackets, a long bar, and actual sawdust on the floor.

Going back to the men's room we stumbled through umpteen couples dancing in a totally dark room to the high-volume nickel phonograph (the same record we heard coming in was repeated *ad nauseum*) into another more brightly lit cubicle where faro, blackjack, roulette, and dice games were in full progress.

It took a little nerve, but we took a few candid snapshots of this.

### Letters to Editor

#### Albert Ahrens Men

Miller Refrigeration Service Co.  
Authorized General Electric Service  
1140 Broadway Place  
Oklahoma City, Okla.

Editor:

I find that the letters written by

## Sunday Morning in Will Rogers' Home Town



Top: Two views of Claremore, Okla.'s finest, the Will Rogers hotel, and a close-up of Wilson Hardware Co.'s show windows. Bottom: Ex-home of Albert Ahrens Co., G-E dealer, and a view of the Wilson Hdwe. Co. building.

service organizations and dealers helpful to all concerned in our group. I do not mean that this is the best part of the ELECTRIC REFRIGERATION NEWS but it ranks near the top, and as you are compiling a list of independent service men I would like to have the name of this company entered on that list.

The News does not stay in one place long after the mail is delivered, but is read (or rather studied) by the men and then the features discussed among us all.

This is an independent service organization servicing General Electric Appliances in and about Oklahoma City under the General Electric Supply Corp., Oklahoma distributor. The men are those in the old Albert Ahrens Co., which I believe is still on your subscription list.

Thanking you for giving us the opportunity to receive classification with your paper.

A. W. AHRENS, Manager.

### How to See India

Ahmed A. Fazalbhoy  
New Queen's Rd., Bombay  
Comprehensive Distributing Service  
for Manufactured Products in India  
Dear Mr. Taubeneck:

I received your letter of 25th November. I am a very interested reader of your REFRIGERATION NEWS, and I am pleased to learn that you are planning a visit which would include India. From the commercial point of view Bombay and Calcutta are most important and on a smaller scale Karachi, Delhi, Lahore, and Madras. Colombo is outside India and a small market. From the scenic point of view India is wonderful and your tour may include Kashmir and Simla in the north, Darjeeling northeast, and Ootacamund in the south. From the historic point of view India is great and a visit to Delhi and Agra will be a revelation as well as educational. I think the

best itinerary would be as follows if you land in Bombay:

Bombay to Karachi to Lahore and Peshawar—from Peshawar to Kashmir via Rawalpindi and then onwards to Delhi, Simla, Darjeeling, Agra, Cawnpore, Lucknow to Calcutta—from Calcutta to Madras and then onwards to Colombo via Ootacamund from where you can sail towards Far East.

The above program will cover your tour in one way direction saving expense and time and covering practically everything worth seeing and worth understanding from the point of view of business, social, and political life, past and present.

Anyhow when you will be here, you will get lot of advice from many quarters, and I believe a definite plan can be arranged then. The time taken for the above tour program may be around one month. A shorter stay will mean rushing up and fatiguing. I should be most glad to offer you every assistance within my power when you will be here and I extend hereby a hearty welcome to you.

AHMED A. FAZALBHOY.

### Assistance in Austria

Ignaz Gellert & Co.  
Bau Von Kuhl-Und Gefrieranlagen  
Wien, III., Kegelgasse 27.  
(Vienna, Austria)

Editor:

In reply to yours of the 25th Nov., we shall be pleased to have your visit, when you come to Europe. We shall do our best to be of any assistance we can and any suggestions or help we can offer, we shall do it gratefully.  
BAU VON KUHLANLAGEN.

### Friends in Foreign Lands

American Z Corporation  
Refrigeration Engineers  
11 Park Place  
New York, N. Y.

Mr. Taubeneck:

I have read with great interest in

the ELECTRIC REFRIGERATION NEWS of January 1 the article "Around the World."

May I wish you Bon Voyage and all the possible success for your trip.

It is possible you might need some addresses of my friends abroad.

1. Albert E. Russell  
James J. Niven Co., Ltd., Engineers  
Wellington, New Zealand.
2. H. Ind-Comley, Director  
Torrens Securities, Ltd.  
28 Martin Place, Sydney, Australia.
3. Mr. George Azrilenko  
Outram Private Hotel, Outram Rd.,  
Fort Bombay, India.
4. Mr. C. de Chessin, Eng.  
9 Rue Frederic Bastiat, Paris (17).
5. Walter Pohlmann, Dipl. Ing.  
Klopstock Strasse 11.  
Altona-Hamburg, Germany.
6. C. Tullander  
Odengatan 38, Stockholm, Sweden.

All these people speak English very well and I am sure they will be very glad to tell you about the local situation.

I hope my son and I will meet you in June at the International Congress of Refrigeration in Holland.

M. T. ZAROTSCHENZOFF,  
Technical Director.

### 40 Years' Experience

c/o The Crown Agents for the Colonies  
4, Millbank  
Westminster,  
London, S. W. 1, England

Editor:

I note that you are expecting to visit this country in the first six months of 1936.

On arrival in Britain if you could give the writer (who is a refrigerating engineer of 40 years' standing) some ideas of the date when you could call and see him, he would be glad to try and arrange an interview.

I hope you will have a successful and interesting trip.

J. T. H. BURRELL.

## WOLVERINE COPPER TUBING Makes Good Installation Work EASIER AND FASTER

**WOLVERINE** Standard Refrigeration Copper Tubing meets ASTM Specifications B 68-33 and is drawn from 99.9 per cent pure deoxidized copper—finished bright inside and outside; thoroughly dried and sealed with the Wolverine "W" to protect it against moisture. A uniform soft temper makes it very easy to bend, cut or fabricate.

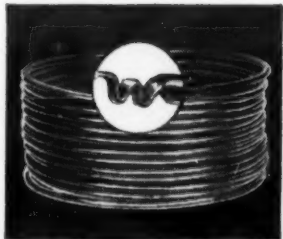
Wolverine Refrigeration Tubing is also furnished electro-tin-plated. Both plain and tinned tubing is furnished in 25, 50 and 100-foot coils.

The installer may obtain Wolverine refrigeration tubing in securely wrapped coils—a convenient compact package which adequately protects the tubing and keeps it perfectly clean and bright until it is used. The size and length are designated on the outside of each package.

### TYPES 'K' 'L' and 'M'

For Air Conditioning and space cooling, Wolverine Deoxidized Copper Water Tube assures an excellent job. Every piece carries the name "Wolverine" and Type "K", "L" or "M" stamped in the metal to indicate quality and as a guaranty of compliance with ASTM Specifications B-88-33 and Federal specifications W W-T-799.

This tubing is well stocked for immediate delivery in all sizes from 1/8 inch to 2 inches, in both hard temper straight and in soft temper coils. It can also be furnished, tinned, inside, and outside.



**WOLVERINE TUBE CO.**  
SEAMLESS COPPER BRASS & ALUMINUM

1411 Central Ave.

Detroit, Mich.

"AN OLD NAME IN A YOUNG INDUSTRY"

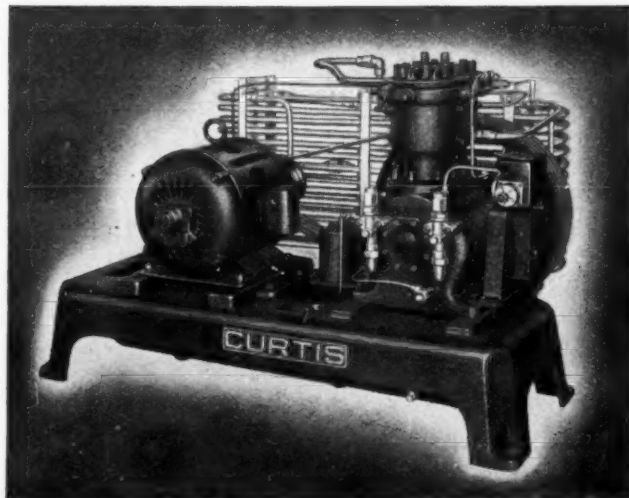
# CURTIS

Specify CURTIS  
and be sure

## ELECTRIC REFRIGERATION AND AIR-CONDITIONING UNITS

The sure way to satisfaction from a refrigeration or air-conditioning installation is to be certain that its most vital part—the condensing unit—is built by Curtis. Their constant, trouble-free performance is the result of 41 years' specialized experience in building fine compressors.

**Complete Line—59 Units • Extra Capacity • Slow Operating Speed • Experienced Design • Low Upkeep • Rugged Construction • Fine Materials and Workmanship**  
Curtis enjoys the highest capital and credit rating—a Curtis product won't become an "orphan".



## CURTIS

Curtis Refrigerating Machine Company  
Division of Curtis Manufacturing Co.  
1912 Kienlen Avenue — St. Louis, Mo.

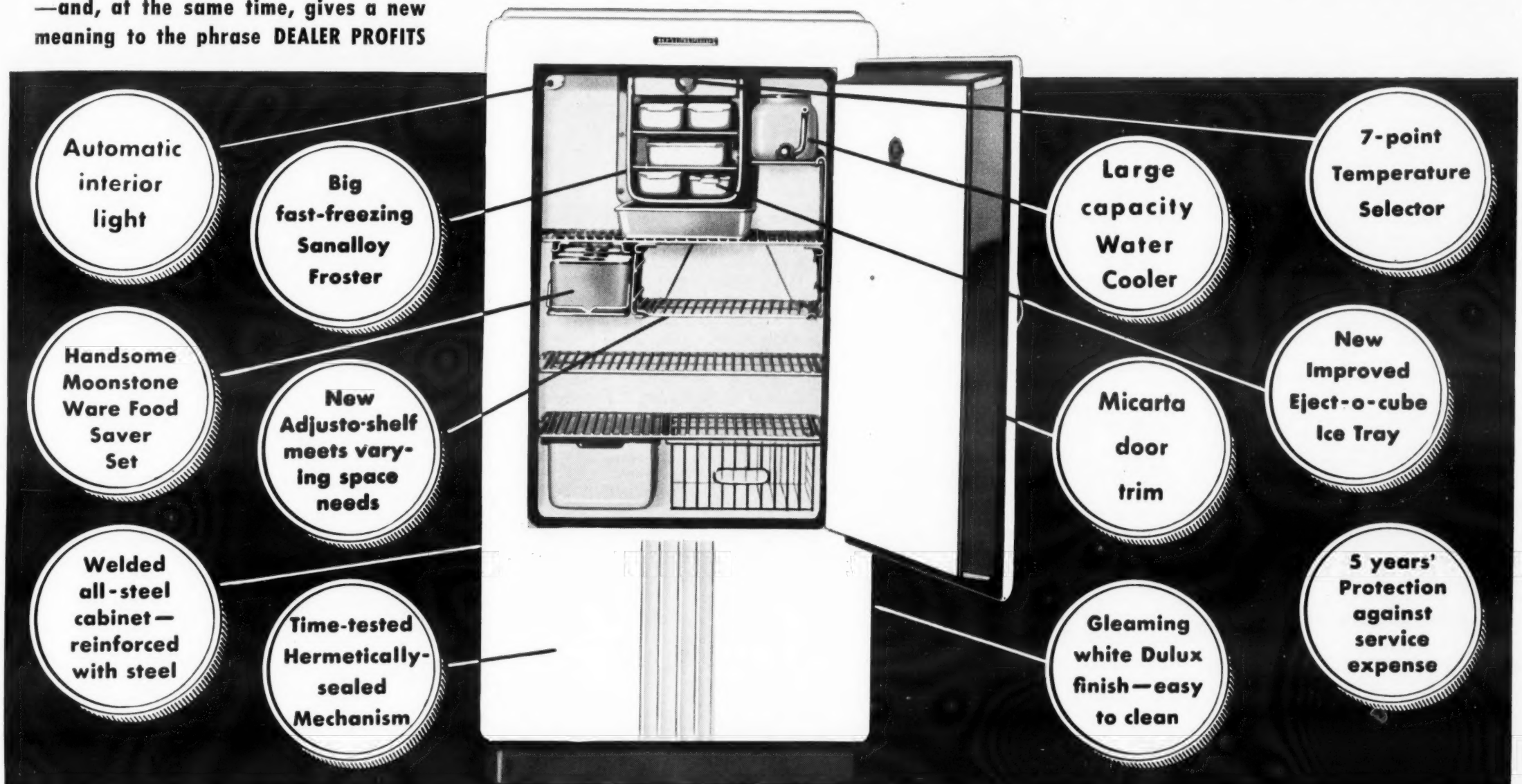
In Canada:  
Canadian Curtis Refrigeration Co., Ltd.  
20 George St., Hamilton, Ont., Can.



# NOW..WESTINGHOUSE

## puts a new meaning behind the word **VALUE**

—and, at the same time, gives a new meaning to the phrase **DEALER PROFITS**



A two-dimension selling opportunity — selling the same **QUALITY** that has given the Westinghouse Refrigerator a nation-wide reputation as a product — and now adding to that quality **MORE DOLLAR VALUE**.

A two-dimension profit opportunity for every Westinghouse Refrigerator Dealer — an opportunity to sell to a larger value-seeking, volume market — and an opportunity for bigger **RETAINED PROFITS** through Westinghouse *lower service costs*.

In this fiftieth year of Westinghouse progress the Golden Jubilee Refrigerator Program holds to and enlarges the essentials which have contributed

so largely to the success of Westinghouse Refrigerator Dealers in the past.

These dealers know from experience how it pays to **RIDE WITH A WINNER** — know that the great buying public is not stampeded one way or another — know that **MORE DOLLAR VALUE** linked with time-tested quality and service is, after all, what the public wants.

Write for the details of the Westinghouse Golden Jubilee Refrigerator line, and selling program; or use the convenient coupon.

WESTINGHOUSE ELECTRIC  
& MANUFACTURING CO.  
MERCHANDISING DIVISION  
MANSFIELD, OHIO



# Westinghouse

*Golden Jubilee* **REFRIGERATORS**

Westinghouse, Mansfield, Ohio:—

Please furnish the details of the Westinghouse Golden Jubilee Refrigerator program.

Name.....

Address.....

City.....State.....



## Rise in Home Furnishing Sales Foreseen at Drygoods Meeting

(Concluded from Page 1, Column 5)  
up, the possibilities are for further advances.

Distributors are justified in covering somewhat more liberally on electrical appliances than on most others, he declared, and pointed out that the real problem of the distributor will be to meet the increased competition of other retail as well as manufacturing outlets.

### Eberhart Predicts Extension of FHA

"I have heard no protest against the FHA in any of my travels throughout the country," said Mr. Eberhart. He predicted that the bill to extend the act would probably not come up until late in the session.

In his talk at the Wednesday morning session, Mr. Eberhart declared that 2½ million homes have already been placed under repair or modernization and that over 700,000 FHA loans have been made by about 6,000 lending institutions.

These loans, he said, average about 350 each and up to this time less than 700 of them have defaulted. This shows, he claimed, that the 20 per cent insurance furnished by the Government under Title I of this Act is more than adequate; and secondly, that the people are not induced to borrow beyond their ability to pay.

From a social standpoint this home and building improvement program is imperative, Mr. Eberhart said. Most of the crime in the United States is committed by youngsters around 21 years or under. At least 90 per cent of such young criminals come from neglected and broken up homes.

### Lilienthal Says TVA Is Opening New Market

David E. Lilienthal, director, Tennessee Valley Authority, told the department store executives that the TVA is breaking a "log jam" of high rate structures and that its program will result in a "vast new market for electrical appliances."

Sale of electric energy is the job of the public utility, Mr. Lilienthal admitted, but the retailer should be interested in it because price and conditions for sale of electricity

determine also the market for electric appliances.

"If rates are high," said the TVA director, "then use is restricted to lights, a radio, and a few small breakfast appliances; when rates go down, then ever-widening markets are opened up for new types of current-consuming equipment, leading ultimately to the all-electric kitchen and the all-electric home."

At the present time, the rate structures of most utility enterprises are relatively high, claims Mr. Lilienthal, and these high electric rates create a log jam, blocking and holding back a tremendous flood of buying power. "In no field does the principle of diminishing costs apply with greater force than in the case of electricity," he said, "but in spite of revolutionary technical improvements, in no field does the principle seem to have been so little applied."

In explaining how the TVA came about, Mr. Lilienthal said that the nation has spent vast sums in all parts of the country to build structures for the control of floods to improve our rivers, and if the government can use those structures so they will pay back part of their cost, that is just good business.

#### Publicity Aided TVA Program

Declaring that records have demonstrated the success of TVA's rate-lowering activities, Mr. Lilienthal gave a major share of the credit to the publicity accompanying the launching of the TVA program, and to the Electric Home and Farm Authority, now on a national basis, which assisted by providing lowered prices and easier finance terms for major electric equipment.

"Of course the skeptics—some of the electrical journals and the Wall Street executives—were quick to announce that this record and the equivalent records in Alabama and Georgia were not because of but in spite of the TVA," Mr. Lilienthal commented. "But in the Valley itself many employees of the Tennessee Electric Power Company and other private utilities have been more generous in admitting the quickening influence of the TVA."

"It has been my observation," he said, "that most operating company employees are definitely hostile to the policies of their holding company executives, cloistered as they are in

New York offices, wedded to out-worn doctrines of management, blind to the expanding needs of the operating territory, and concerned only with keeping the 'net to common' flowing 'up the line' for those at the peak of the holding company pyramid. The operating employees on the other hand, are in the field and are in daily contact with the public. They know the needs and wants of their customers."

The Georgia Power Co., which liberalized its rate structure, ranks twenty-third among the utility companies of the United States in number of meters; yet it sold more refrigerators the first year of this rate reduction than any company in the country, declared the TVA director.

#### Utilities in Appliance Business

After citing the sales record made by a utility company, Mr. Lilienthal suddenly shifted to the question of—should the electric utility also be in the business of selling appliances?—and said that his personal view is that, apart from preliminary developmental work on new types of equipment, the utility should stay out of direct merchandising, and leave that to the merchant and dealer.

According to Mr. Lilienthal, there were no local appliance dealers, in many of the areas which TVA entered, but that they developed fast enough after the cheaper power went into effect. Dealers entering the field included jewelers, cobblers, grocery stores, filling stations, and even a harness maker and a funeral home.

"At the present time there are in the so-called TVA service area approximately 70 local dealers serving 9,600 residential customers," stated Mr. Lilienthal.

"During the first 10 months of 1935, these dealers reported total sales of electrical appliances of nearly \$700,000.00, or an average of nearly \$73 per customer, as compared with an estimate of \$30 per customer for the rest of the nation."

### Dibrell Cites Retail Value of Building Program

Edwin R. Dibrell of E. R. Dibrell & Associates, New York, declares that the accomplishment of the yearly building of 750,000 homes as recommended recently to the President by the Committee for Economic Recovery would eventually amount to possible increases in sales to retail distribution of \$879,000,000 yearly in the next few years.

Quoting government figures, Mr. Dibrell outlined the cost of the various materials required in a \$5,000 home as well as the various items of home-furnishings merchandise required to furnish suitably a home of this price. He allotted \$120 for refrigeration.

"Between 30 and 40 per cent," he went on, "of the cost of such a house and land, is the consensus from various sources, is cost of its home furnishings . . . which outlines the possible home furnishings business which may accrue to retailers through the accomplishment of a program of low cost home building."

"Unusual as it may seem, the accomplishment of a low cost home building program, privately financed, will mean more in terms of added sales to retail distribution than to any other single group of building supply or other industries interested in the promotion of home building."

Quoting numerous figures compiled by private authorities, which indicate that the resumption of home building will put billions of dollars into circulation again, Mr. Dibrell concluded:

"If these findings are sound—and there is no reason to question the investigations—then there is indicated in the United States of America in the fairly immediate future, an era of unquestioned and perhaps unsurpassed prosperity."

"The pent-up demand and replacement requirements which have been built up through failure on the part of many to renew when required, home furnishing needs, has now commenced to be vigorously exercised."

### Holden Reports Building In Last 6 Months of 1935

Briefly reviewing the history of the upward home building trend, T. S. Holden, vice president of F. W. Dodge Corp., who is also president of the New York Building Congress, pointed out that after moderate but substantial increases over the preceding year in each of the first six months in 1935, all the months from July on had double the 1934 volumes of residential contracts, or better.

"The increasing momentum," he continued, "was such that, from the middle of the year onward, we have constantly been obliged to revise upward our estimates of the total number of new family dwelling units being built throughout the country."

"Our final estimate for the 1935 home building program in the entire United States is 90,000 units (houses plus apartment suites) compared with 40,000 in the preceding year. As an index of recovery progress, a more than doubled volume for a 12-month period is very encouraging."

"This was due to a revival of private investment. Only a little over 8 per cent of the year's total residential expenditures consisted of housing projects directly financed by governmental agencies."

Pointing out an increase in the building of apartment houses, Mr. Holden explained that vacant buildings of this type were mostly obsolete. Expenditures for new apartment buildings increased nearly three fold over 1934, he added.

"The increased acceleration of the home-building revival during the past six months," he continued, "itself suggests the likelihood of a continuation through 1936."

"The record of the first half of January confirms this. During the first 15 days of this month, residential building contracts awarded in the Dodge territory, consisting of all states east of the Rocky Mountains, was \$16,224,500, compared with \$10,659,600 in the first half of January, 1935, an increase of 52 per cent."

### Namm Urges Drive to Oust Business Racketeers

A new deal for business and a drive to end the practices of business racketeers were urged by Major Benjamin H. Namm, president of the Namm Store in Brooklyn.

Capital, labor, and the consuming public, which make up the "fair 90 per cent of business," Major Namm said, never had a better opportunity to drive out the "unfair 10 per cent."

He urged business men to call for a new deal from their political representatives and referred to "unfair legislative enactments by state and federal bodies."

In outlining a threefold goal for labor, the employer, and the public, he said:

"Capital is entitled to the right to earn a fair profit, to engage in fair and open competition, and to protection from predatory and unfair methods of competition."

"Labor is entitled to fair minimum wages and reasonable hours, proper working conditions, elimination of sweat shops, and the right to organize for mutual protection. And the consumer is entitled to the right to shop without interference, with a maximum of economy, and a maximum of fair dealing."

Some legislative measures which Major Namm regarded as a retarding influence on business were discriminatory taxes against large corporations, restrictive legislation against chain stores, the federal government's own competition with private industry, and the government's efforts to organize consumer cooperative associations.

#### Sales Below Cost

Major Namm said the Federal Trade Commission should rule at once against the sale of merchandise below its invoice cost plus allowance to cover labor costs. It also should declare the advertising of any general underselling claim an unfair trade practice. It should declare unfair all advertising that deceives the public.

He said that despite the effort of many stores to maintain fair hour and wage standards it is a known fact that some stores work their employees

60 and 70 hours a week at salaries below the prevailing rates.

The State Department of Labor should act against such practices, he said, as the "fair 90 per cent" cannot indefinitely maintain their present schedules against the "predatory 10 per cent."

Ronald F. Riblet of the supply purchasing department of the Associated Dry Goods Corp., said that all hoped that prices would go down with the removal of the NRA and the AAA, but he could not see relief in those facts.

"These were unnatural man-made regulations which, although they have been declared null and void, have left their mark upon the manufacturers and the masses," he said.

If prices rise because of general conditions, he said, the rise will be parallel and the proportion of expenses kept, but if prices are regulated artificially the only recourse is to intensive planning and standardization.

### Hanssen Says Last Half of '36 May Near Prosperity

Frederick Hanssen, president of Thomas Gibson Investment Service, predicted that the early months of 1936 will witness a short improvement in trade and corporate profits which has not yet been fully anticipated in market prices.

"The probability is growing that the fall months of 1936 will witness something bordering upon prosperity," he declared.

### Denver Store Urges Buyers To Read Mortgages Before Signing

DENVER—When an electric refrigerator customer of Denver Dry Goods Co. starts to sign the short chattel mortgage form, he confronts in red ink, directly below the signature line, this request:

"BEFORE SIGNING please read the contract in order that no misunderstanding may develop."

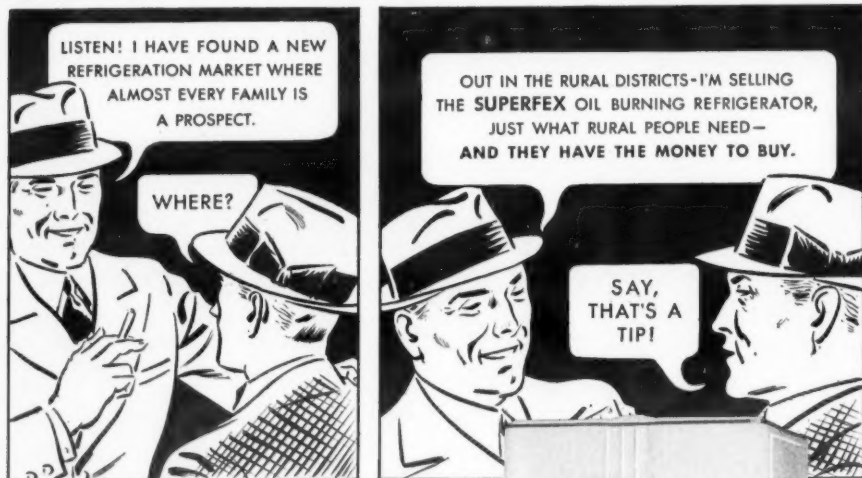
The store's brief chattel mortgage form, 7½x8 inches, folded once with the usual document backing, is used for all contracts of \$300 or less. A lengthy detailed chattel mortgage form is used for larger deals.

The brief form has the usual provisions requiring the customer not to move the refrigerator from the named address without the consent of the Denver Dry Goods Co. and stipulates that, in the event of default or the customer's attempt to move or sell, the company may at its option repossess.

E. A. Powell, credit manager, introduced the red-ink request especially to handle the problem created when manufacturers' representatives carry out sales campaigns for the store.

### Frigidaire Dealer Named In Montrose, Colo.

MONTROSE, Colo.—New Frigidaire dealer here is the McIntyre Electric Shop, recently opened at 13 North Cascade Ave. The shop also carries a complete stock of appliances.



### YES, SUPERFEX HAS OPENED A BIG NEW MARKET FOR REFRIGERATION DISTRIBUTORS AND DEALERS

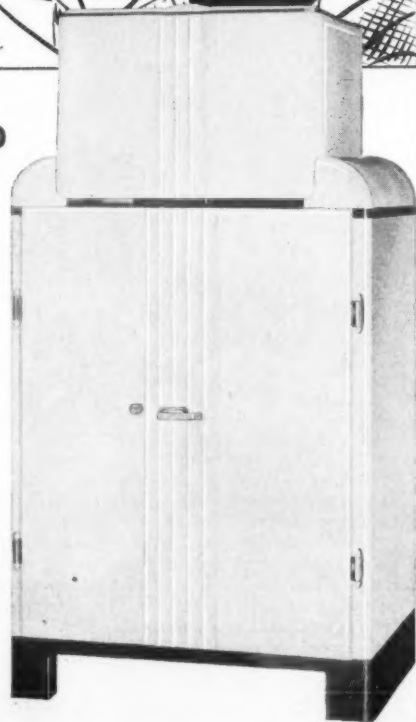
Thousands of dollars are now flowing into the pockets of dealers and distributors from the sale of Superfex—dollars that are coming from rural districts where other types of mechanical refrigeration can not be sold.

Profits from the sale of Superfex are bankable profits, because service calls are almost unknown. There are no outside connections—no moving parts.

The dependability of Superfex has been proved by eight years of reliable performance and by thousands of users. It is made by the Perfection Stove Company—a company that has stood high in the respect of rural people for almost fifty years.

PERFECTION STOVE COMPANY • 7720-A Platt Ave.  
Cleveland, Ohio

# SUPERFEX THE OIL BURNING REFRIGERATOR



Our proposition to distributors and dealers is a generous one. Write or wire for complete information today.



## BUYERS

Are Quick to Appreciate the

# PRECISION-BUILT COPELAND

## Copeland

Commercial REFRIGERATION

MOST buyers of commercial refrigeration are mechanically minded. Years of automobile ownership have taught them the piston-and-cylinder principle. These respond instantly when shown the important advantages of Copeland precision-building methods. It is easy to sell these buyers on a Copeland commercial unit with its micro-honed cylinders, diamond-bored bearings, balanced flywheel, ultra-smooth performance and long life. You could do well with this great line. A few territories are available. Write for details.

COPELAND REFRIGERATION CORPORATION  
Manufacturers of a complete line of Household and Commercial Refrigeration  
Holden Ave. at Lincoln . . . DETROIT, MICH.





## Department Store Credit Men Hear Experiences of Stores that Use Deferred Payment Plans

NEW YORK CITY—Experiences of their stores with deferred payment plans, particularly in the sale of electrical appliances, were outlined by R. L. Allison of the Quackenbush Co., Paterson, N. J., and H. R. Teubner of Strawbridge & Clothier, Philadelphia, before the Instalment Selling session of the N.R.D.G.A. meeting here last week.

"Our four years' credit experience in connection with selling electrical appliances is not significant because it is an electrical appliance story but because it represents four years' experience in long term instalment selling," Mr. Allison stated. "It illustrates the vast possibilities of increased sales in durable consumers goods by way of the instalment route.

### Based on Economic Principles

"Four years' experience in connection with any experimental operation of an economic nature would be no basis for definite conclusions if that operation were not based on already established and accepted economic principles. The economic principle on which we have based our long term credit is the mainstay of our industrial system.

"It is on this simple but sound basis that we can profitably sell durable merchandise to the consumer to be paid for in instalments. The length of the period over which the payments for an item may be extended depends upon the length of the period over which that item will be consumed."

The value of the merchandise to the purchaser, not the value to the seller, is the guarantee of payment, Mr. Allison pointed out. The value to the purchaser depends wholly on the utility of the merchandise to him whether that utility be physical or sentimental and if that value is at all times during the payment period greater than the amount owing on it, the credit extension is a sound one. Any equity the purchaser may have over and above the depreciation in value to him is an additional margin of security for the seller.

### Safeguard Against Deflation

"In view of the instability of our currency it seems advisable to plan our terms so that there will always be on our aggregate outstanding accounts enough additional purchaser's equity to safeguard us against losses due to deflation at any point in the normally expected business cycle," Mr. Allison declared.

"If the item has model or style features we must also figure on an additional margin of safety to protect us against obsolescence."

Moral responsibility, said the speaker, is always important and must be considered in credit extension, but it is no more important in sound instalment credit than in any other business operation based on the human factor in the aggregate.

"We have always known," he commented, that there are a few people to whom we can sell almost anything on any terms, but that field is limited.

### Plan Based on Value

"We have not been able to increase our sales volume appreciably on that favorable moral factor; but, by changing our plan to one based on value we can reverse the process and eliminate the 'dead beats' risk and sell all others with sufficient incomes. The moral responsibility of the buying public fluctuates with our dollars and is not nearly as easily calculated.

"On first consideration this credit plan does not seem to coincide with our small or no down payment plans. We are admittedly skating on very thin ice for a period, being dependent for the first month on the customer's value of the item over and above the full purchase price.

"It is on the accounts with no down payments or very small down payments that we have had most of our merchandise repossessions.

### Amount of Down Payment

"While the losses from this source have presented no real problem, it seems advisable to require at least as much as one monthly payment as a down payment unless the 'nothing down' or 'dollar down' appeal has a very high promotional value and the mark-on on the merchandise is sufficiently high to compensate for the additional loss.

"In selling quality merchandise on payments which can be paid out of earnings without difficulty, we are offering the purchaser a valuable service. It makes possible rapid increases in our standards of living without additional income.

Mr. Allison declared that there is a very definite public demand for longer terms and the public is willing to pay a reasonable price for it. That price, in the form of a carrying charge, should be sufficient to provide a fair return on the investment, pay

for the additional expenses of collections, and cover the small risk of loss which inevitably results from any credit operation.

### 6% on Unpaid Balance

"We believe that 6 per cent per annum on the balance after deducting the down payment to be an adequate but not excessive charge," the speaker said. "Our operation for the past four years indicates that our costs and losses do not warrant this charge, but we must consider that this period covers a portion of the up-swing of the business cycle with the favorable factor of inflation and we do not expect to continue this or any other type of credit extension without some losses.

"During periods of rapid deflation and the downward swing of the normally expected cycle we expect considerably greater losses and in anticipation of these losses we are building up a reserve of one-half of 1 per cent of charge sales and also a reserve for unearned carrying charges.

### Losses of 1/2 of 1%

"We do not believe that we could limit our losses to an amount less than one-half of 1 per cent and not reject some desirable accounts," he said.

Addition of the 6 per cent carrying charge has presented no real selling problems, Mr. Allison averred.

"While an 18 per cent additional charge for three years' credit presents what might seem to be a formidable figure we find that most purchasers consider it a very reasonable charge," he explained.

"Most of them have had experience with automobile financing which has until recently been figured on a much higher rate.

"When a customer does question it we explain how it is figured and of what it consists without apology. We do not attempt to explain it away as a 6 per cent interest charge and it is shown as a separate and distinct figure on the fact of our sales contract.

### Extension of Terms to 3 Years

"When extending three-year credit we want to be sure the customer is sold on the merchandise and sold on the credit plan. Here we again find that the average purchaser's chief interest is in the quality of the merchandise and the amount of the monthly payment and the total purchase price is of secondary consideration.

"The reaction of the purchaser to this item depends largely on its presentation by the credit department.

"During these four years of controlled progressiveness embodied with that confidence and enthusiasm which naturally results from a successful operation, our credit department has become a specialized selling department. It has taken up an advanced position as an integral part of a selling organization. It does not consider itself merely as an agent to accept or reject potential customers.

### Sell Agreeable Plan

"Our credit department manager considers it his responsibility to either verify a sale as agreed upon between the selling department and the customer or sell the customer an acceptable plan which will work out to better advantage.

"When we first went into long term credit we were ultra-conservative and had a big percentage of rejections. Realizing that we must avoid as much as possible the ill-will this might create, we adopted the policy of having each questionable applicant who had not by past records branded himself as a 'no good' come to the credit department for an interview.

"With him we had a very personal discussion of his financial status and by comparing his obligations with income, we either convince ourselves that the applicant is worthy of the credit desired or convince him that additional obligations should not be assumed.

### Results of Plan

"As we had expected, this plan first sends the rejected customers away feeling that we have kept them out of difficulty; secondly, reduces the number of rejections; and third, and most important of all, teaches the credit man what is and what is not a good credit risk."

This experience, said Mr. Allison, together with a careful analysis of the causes of repossessions gives the department a vast fund of knowledge—knowledge which is indispensable when drawing the fine line between the desirable and the undesirable.

Said he: "For the year 1932 we rejected 9.2 per cent of the applications. Last year we rejected 3.1 per cent and our repossessions have not indicated unwarranted laxity.

"Our analysis of repossessions revealed some very significant figures. The first and greatest cause of repossession, representing 40 per cent of the total, is errors in credit extension. "Most of those in this group have been poor moral risks on whom we were not able to secure information on past credit experience. Every 'no good' must stick somebody once before he is thus branded and we get our part.

### Reduction of Income

"Second cause is loss of or reduction of income representing 30 per cent of the total. We have found that only a negligible number of people will buy more than they can pay for on long terms, provided they have been accustomed to living on their present salary.

"A credit man passing on this point intelligently must be familiar with the many existing standards of living and is largely dependent on the judgment of the purchaser. A credit department can, however, find out from the employers of most customers the probability of his loss or reduction of income and can thereby reduce the losses from that cause.

"This figure is the only one which is greatly affected by increasing the payment period. If we had sold this

merchandise on six to 12 months instead of 18 to 36 we might have reduced our repossessions by 20 per cent, but a saving of 20 per cent of our repossession losses would be too small to be a determining factor.

"To poor selling we attribute another 10 per cent of our repossessions. A customer who is not thoroughly sold and regrets her purchase is a potential trouble maker.

"This is difficult for the credit department to handle unless it gets the finest cooperation from the selling departments. We have had no difficulty with those departments directly controlled by us but have experienced some difficulty with outside groups selling electric cleaners.

### Verification Letter

"We have reduced this problem by a verification letter stating the amount of purchase and carrying charge, amount of down payment, terms, date of first payment, and emphatically disclaiming responsibility for any verbal agreements or promises. It is a simple little procedure but the results have been remarkable.

"The fourth cause, which covers another 10 per cent, is domestic troubles and one for which I suggest no cure. The remaining 10 per cent covers all others, the most important

of which are unsatisfactory merchandise and racketeering by competitive salesmen."

It was pointed out by the speaker that when analyzed, these causes present simple problems which can be at least partially solved by a little determined effort.

"We have been able," he said, "to reduce gradually our repossessions from over 3 per cent in 1932 to 2.1 per cent in 1935. On first thought this figure might appear to be high but on further analysis the loss proves to be negligible.

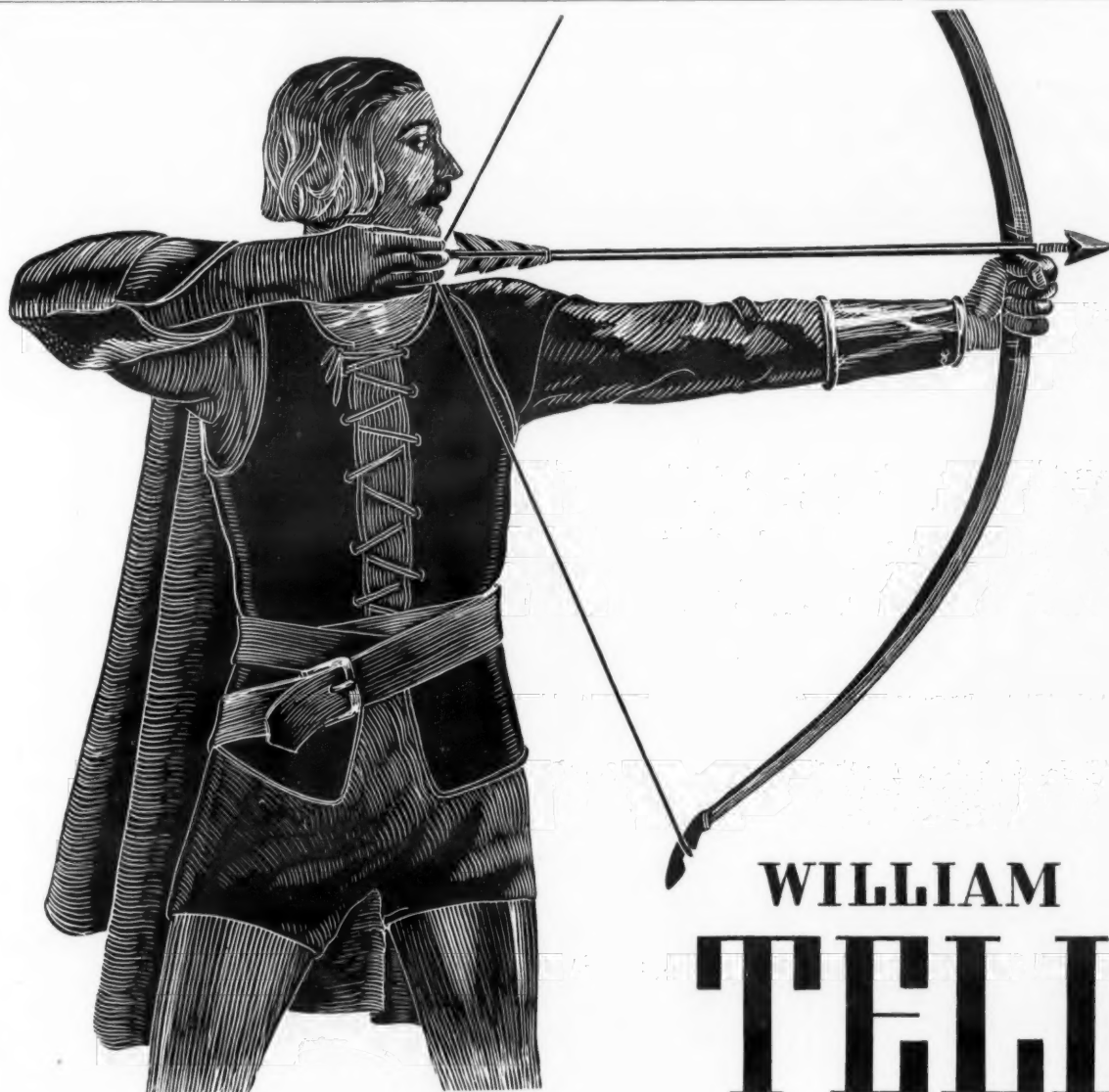
"The markdowns necessary for reselling this repossessed merchandise amounted to 23 per cent of instalment sales in 1933, 16 per cent in 1934, and 14 per cent in 1935."

### Success Hinges on Collections

In Mr. Allison's opinion, the underlying principles of instalment selling are sound, the methods by which it is extended are relatively simple, but in the final analysis its success depends on collections.

"Our credit department is just as enthusiastic about collecting as extending sound credit," he reported. "While the primary object is to sell merchandise, it is equally important that the money for it be collected.

(Concluded on Page 8, Column 1)



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## Right Kind of Credit Judgment Needed To Make Long-Term Payment Plans Profitable to Stores, Speakers Say

(Concluded from Page 7, Column 5)

"We extend credit on the basis that to the customer the merchandise is worth more than the amount owing and we collect on the same basis. As soon as it is determined that an account is not going to be paid regularly (not paid but paid regularly) we repossess the merchandise quickly. A mistake, regardless of the cause, has been made and if there is any loss to be taken we take it immediately and avoid further loss.

### Commission Charged to Salesman

"The merchandise is charged back to the selling department for the unpaid balance, and the commission charged back to the salesman. This gives them an incentive for selling it in a hurry and keeps it from getting obsolete.

"If the first payment on a new account has not been made by the time the second payment is due, we send a collector who collects both payments or arranges for the return

of the merchandise. At no period of the duration of the contract do we permit an account to become more than three months in arrears.

"Again, analysis of our repossessions gave us valuable information. Over 90 per cent of those from whom we repossessed merchandise did not make their first payments before the second payments were due.

### Repossessions in 3 Months

"Most of our repossessions are within three months, which accounts for a high repossession percentage and a low markdown percentage. We believe that is a healthy operation.

"The cost of collection from a slow payer over a period of three years would in most cases be more than the losses from markdowns and the cost of reselling even if ultimate collection were assured."

According to Mr. Allison, a good outside collector is a necessity and a good salary which is necessary to keep a man of the required capacity is a good investment.

"The amount paid our collector is about one-third the amount we formerly paid our attorney, and our losses have been reduced, and the lag in final payment has been practically eliminated. Less than one-tenth of our repossessions during the past year were through the courts, and our court costs plus attorney fees amounted to exactly \$168.34.

### Court Repossession Not Used

"It is not our general practice to enforce collection through the medium of the courts. Repossessions from customers who made their purchases in good faith and find themselves unable to meet their payments are arranged on a friendly basis.

"The value of good-will to the department store in contrast to the 'one-sale' specialty shop must always be considered. We do not attempt to produce good figures at the store's expense—realized in other departments. If, however, the purchaser can pay and has no legitimate reason for not doing so, the article is repossessed and a deficiency judgment adequate to cover all losses and the costs of collection is secured and collected.

"We always repossess—we do not force collections. This action serves a dual purpose. It reduces losses and keeps away the dead-beats. The reputation of being hard collectors, and the reputation of being fair and reasonable within the bounds of good business practices, are both valued acquisitions."

While liberal long-term credit alone will not rapidly increase home furnishings sales, said the speaker, it is the foundation for a phenomenal business in this department.

"It would be impossible for me to attempt to offer a sales plan for even each major group in the home furnishings division in so brief a discussion, but a few figures from our operation illustrate its vast possibilities. Prior to 1932 our installment sales represented, on an average, about 6 or 7 per cent of our total volume. That figure has since that time steadily increased.

### Installment Sales Record

"Last year our installment sales represented almost 18 per cent of our total. Two per cent of the 11 per cent increase has been in those departments which still sell on short terms, and the other 9 per cent has been chiefly on the four electrical appliances which we have sold on long terms—namely, electrical refrigerators, washing machines, sewing machines, and electric cleaners.

"This additional business came from all over northern New Jersey. A good part of it came from sections which were never before considered within our shopping area.

"These people could have found the same products in dozens of places and many of them in their own towns and villages, but we offered them the credit facilities they wanted.

"We have not only benefited by these appliance sales but we have benefited an incalculable amount by having several thousand customers come into our store to make payments every month, and we have opened hundreds of regular charge accounts for those who have satisfactory accounts. The value of this rapid expansion of our shopping area is too important to be overlooked."

### Control Advertising to Get Right Customers—Teubner

Proper control of advertising is necessary if merchants want the right kind of credit risks to purchase articles from them on deferred payment plans, declared H. R. Teubner, credit manager, Strawbridge & Clothier Co., Philadelphia.

"If you spread an invitation all over a big ad to people to come to your store and take advantage of the opportunity of getting something for nothing, you can't expect not to get a bunch of deadbeats.

"You can pick your class of customer by your advertising."

### Type of Customer Desired

To whom should be given the privilege of buying on the deferred payment plan?

"Extend the deferred payment plan to those people with a clean moral and good earning record," is Mr. Teubner's answer.

"Judgment of the credit man should be on the basis of character and earning ability. He should, of course, use all possible means of investigation within and without the store to check into the individual's previous record and ability to pay."

Mr. Teubner advocates the extension of deferred payment plans to such "soft" merchandise as clothing, etc., in which fields it is a comparative novelty.

"If you can extend a customer a 30-day account on such merchandise, why can't you allow him to buy it on the deferred payment plan?"

### Independent Billing

Where a customer has two different kinds of accounts, a 30-day account and a deferred payment account, it is best that the accounting, billing, etc. on such accounts, be kept independent of one another.

"When you don't keep them separate, it just entails more work and expense," says Mr. Teubner.

Merchants should have no fear of converting cash business into deferred payment accounts.

"That's what department stores are continually trying to do at all times—convert cash into charge accounts so that they will 'cement' the customers to the store for all their trading.

### Big Losses Not Involved

"The question of the 'large loss' from deferred payment plans is a 'bugaboo' which department store executives will raise when such plans are placed before them. But detailed figures fail to show that there have been big losses involved in such operations."

Biggest danger in such plans, believes Mr. Teubner, is one of poor credit judgment, particularly where competitive terms have been cut to a low point.

Pointing out that the FHA with its low-cost, long-term payment plans on appliances has set a tough precedent, Mr. Teubner said:

"We have again come to the place where we are 'selling terms' instead of merchandise."

In Mr. Teubner's opinion, the credit man is the key man in any department of the store.

"His attitude," he declares, "will determine the attitude of the customer towards the store. The credit man can be the biggest factor in building good will for the store, and by the same token he can be the greatest factor in creating ill will towards the store."

At the request of his audience, Mr. Teubner described the "coupon" system of deferred payments which his store uses.

In this type of system the customer applies to the credit department for a book of coupons. The credit department in turn makes the usual routine investigations, and if they are found to be satisfactory, the customer is granted the coupon book.

The length of the deferred payment term is dependent upon the worth of the coupon book which the customer takes, Mr. Teubner said. They are issued in values as low as \$25, and such a book would call for a shorter term than one of considerably greater value.

In a transaction with a customer who has a coupon book, the salesperson tears out the coupon and pastes it on the back of the sales slip.

Such transactions are entered on the books as cash transactions, this being one of the principal points in favor of the plan, as it brings about a great saving in bookkeeping costs, states Mr. Teubner.

Carrying charges on this coupon book plan are enough to take care of any losses of the type that are involved in such a deferred payment plan.

## Association to Fight Attempts of Congress To Fix Retail Prices

NEW YORK CITY—Channing E. Sweitzer, managing director of the N.R.D.G.A., declared that the association will oppose proposed price-fixing legislative enactments and that it will fight retail sales tax measures as being detrimental to retail trade.

There has already been introduced in the U. S. Senate a bill by Senator Tydings of Maryland—which, if enacted, will permit manufacturers to fix the retail prices of their products, Mr. Sweitzer said.

The present bill is sponsored largely by drug and toilet goods interests—the same group which has always championed the cause of retail price fixing—despite the failure of all price-fixing practices under the National Recovery Administration, according to the N.R.D.G.A. secretary.

### Reasons for Opposing Measure

"The National Retail Dry Goods Association," he stated, "will oppose this measure as it has similar measures during the past quarter of a century for the following reasons:

"It is against the interests of the general public and may unduly raise prices.

"It will foster monopolies among manufacturers.

"It will prevent proper adjustment of retail prices in keeping with changing manufacturing or raw material costs.

"It will abolish free and open competition among retailers.

"It will tend to put the efficient store organization on the same basis as the inefficient.

"It will tend to break down and destroy the initiative of American business.

"It will change the retailer from a buyer for the public into a mere selling agent for the manufacturer.

"It constitutes further unwarranted governmental control of business.

"It will not accomplish its alleged objective, namely, it will not stop predatory price cutting—a practice which we all condemn."

During the past year or two, related Mr. Sweitzer, proponents of price-fixing legislation have sought to obtain through state legislatures this

privilege which has long been denied them by the Congress. During that time, state price-fixing bills have been enacted in approximately 10 or 12 states of the Union, appearing under the guise of fair trade practice acts.

Recently the New York State measure, known as the Feld-Crawford Act, was nullified by the Court of Appeals at Albany in a decision which declared the price-fixing provisions of this Act plainly unconstitutional.

### Effect of Feld-Crawford Act

The Feld-Crawford Act compelled retailers to observe the manufacturer's fixed prices of his products, even though they had entered into no agreement to do so. The decision of the highest Tribunal of New York State tersely stated:

"If this be its meaning, the Law is unconstitutional. That the States cannot fix the selling price of any and all commodities has been settled."

As many existing state price-fixing laws, passed at recent sessions of state legislatures, have been modeled after the New York state law, this decision is a serious set-back to state price-fixing legislation, in Mr. Sweitzer's opinion.

"In my estimation no state bill intended to fix the retail price of products can be written which will be upheld by the courts," said he.

"All attempts to enforce such measures must eventually prove just as futile as the Feld-Crawford Act of the State of New York."

### Retail Sales Tax

Relative to the retail sales tax, Mr. Sweitzer pointed out that figures covering one full year of operation of the retail sales tax in New York City, and less than four months of a retail sales tax of similar rate in the State of New Jersey, seemingly prove that this form of taxation does have its effect upon retail sales, and does tend to drive retail business from taxing communities into non-taxing communities.

Not only are we confronted with the ever-growing burdens of visible taxation, said Mr. Sweitzer, but we must also be concerned with the ever-rising tides of indirect and invisible forms of taxation which are bearing down heavily upon the incomes and purchasing power of the nation.

"The number, kind, and scope of indirect and invisible taxes constitute the greatest evil of our entire system of taxation. Just as long as millions of our people pay taxes without realizing that they are doing so, just so long shall we be confronted with waste and extravagant public spending and the non-efficient administration of our public institutions.

"Retail sales taxes are unfair to the rank and file of our people, because they bear most heavily upon those in the lower income brackets. Sixty per cent of all the purchases of goods and services in the United States are made by those with incomes of less than \$2,000, whose potential savings are less than 4 per cent. A 3 per cent sales tax, which would increase prices 3 per cent, would nearly wipe out the savings of this group."

## Collins Says Stores Must Spend More On Promotion

NEW YORK CITY—With an increase of at least \$1,500,000 in spending in retail stores predicted for 1936, merchants must drop their "penny pinching" promotion policies of recent years and "wade in with both feet" to get a large slice of the increased business, Kenneth Collins, vice president of Gimbel Brothers, Inc., told the department store executives.

Mr. Collins stated that the only way to improve net profits this year was by increased volume, and this could be achieved if the merchants took three factors into account in shaping their policies—more bargains, an extension of credit facilities, and large appropriations for promotion and advertising.

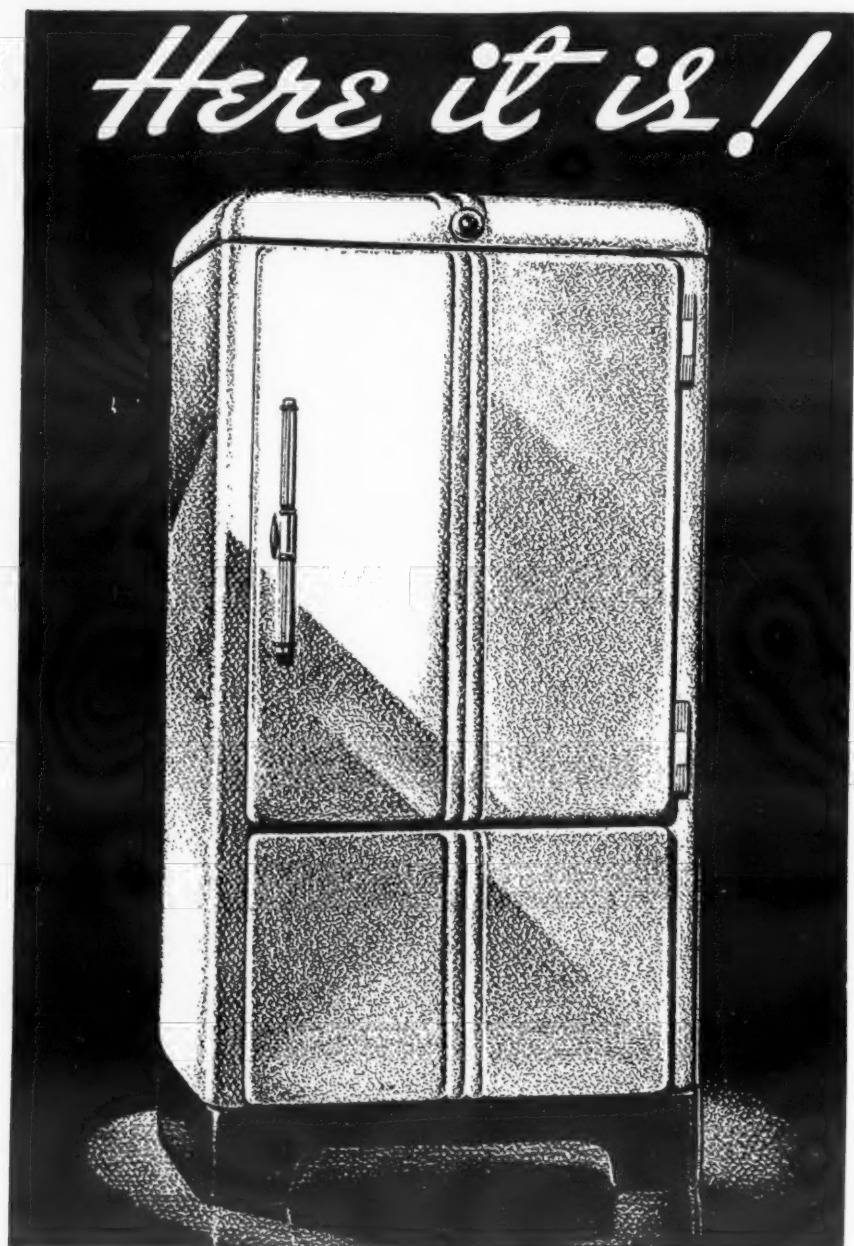
Without a doubt, Mr. Collins declared, price was by far the most important consideration in any piece of sales promotion material, as all merchants knew.

"Every woman in America—I don't care from what economic class she may come—is interested in securing a bargain," he continued. "A bargain is any article of merchandise that is for one reason or another reduced in price or marked originally at a price that represents a level somewhat lower than usual."

According to Mr. Collins, "dramatic increases in volume will depend in part upon a liberal extension of credit facilities."

"Money," he said, "burns a hole in most people's pockets, so that when there are no specific obligations against a pay envelope the amount will be dissipated in all sorts of small purchases and for all types of passing amusements."

It is up to the sales promotion men to convince the mass of people that those purchases which run into large figures should be contracted for at their stores through some type of credit arrangement, believes Mr. Collins.



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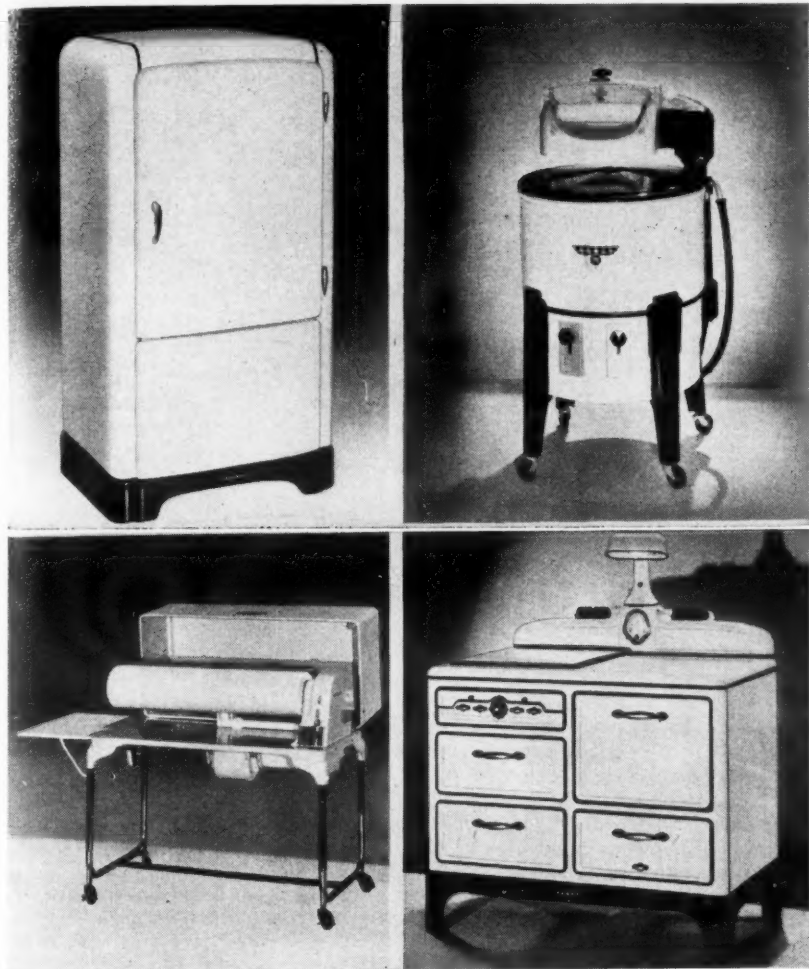
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## Norge's All-Product Story



Norge's line of companion products consists of electric refrigerator, clothes washer, electric ironer, and gas range.

## Norge Develops New Refrigerator, Ironer, Washer, Range Lines

(Concluded from Page 1, Column 3)

design have been retained, from the rounded top to the newly designed black base. All hint of squareness has been eliminated from the cabinet exterior. The mechanism compartment panel and refrigerator door have been redesigned, and are slightly convex in construction. Refrigerator door top is designed to blend with the flowing lines of the refrigerator top. Latch door handle and door hinges have also been refined and improved.

Interior of the food compartment has been further improved. The ice-compartment door is slightly convex, redesigned to harmonize with the refrigerator door. Adjustable shelves have been further improved, shelf bars being closely spaced to prevent small containers from tipping. A sliding combination bottle and dairy rack is provided, easily pulled out, without danger of spilling the contents. The lower portion has space for dairy products, while the upper space will accommodate tall bottles.

An innovation is the sliding utility basket, for storing fruits and vegeta-

### Specifications on Page 22

bles, which pulls out to full length and tilts downward, while firmly anchored to the shelf support. This gives access to the entire contents, and it is easily filled. A regular shelf rack is available when this basket is not desired.

Another new feature is the small circular track holding covered glass containers. By pushing the front jar, the others automatically revolve until the desired container reaches the front. This permits access to the contents without necessitating removal of various containers to reach something in the rear of the compartment.

Rubber ice trays, permitting easy removal of one cube at a time, if desired, and easy removal of entire contents, are standard equipment in addition to the regular and deep trays on the larger models.

The interior light works automatically in conjunction with operation of the Latch, the switch being located directly under the panel lock. The throat lining of the food compartment has been further improved, no screws being visible. Corners of the food compartment lining are more rounded, permitting greater ease of cleaning. Hydrovair cover has been re-designed and improved.

All models are powered with the Rollator compressor, for which increased efficiency and lower operating cost are claimed this year by Norge engineers.

Exterior finishes of Norgloss lacquer are available on all models, while the five largest units may also be had in porcelain, if desired. Models P-52-6 and P-62-6 are also available in green, peach, and tan mother-of-pearl porcelain, with contrasting black base, in matching combinations with Norge gas ranges.

Improvements in the 1936 Norge

gas-range line parallel those of the refrigerator. The same smooth-flowing lines and elimination of sharp corners, refined exterior hardware design, and beauty of finish are found in Norge's 1936 models in this field.

Basically, there are nine models, with a flexibility of color and features to provide a variety of combinations.

All models in the NA series, and model NB-1-36, are equipped with the exclusive Norge "Concentrator" burner. Circular in design, with gas ports located on the inside circumference, this burner is designed to throw heat in toward the center of the cooking vessel, permitting heat travel back over the bottom surface, thus making complete use of gas flame, with no waste of heat up the sides of the vessel. Efficiency of the burner is still further increased by a reflecting bowl, which also protects it from spill-overs. All other models are equipped with round burners.

Color selections are varied. All models in the line are available in shell green porcelain on ivory body, and shell tan on ivory body. The NA series, and model NB-1-36, are available in mother-of-pearl on ivory body. These models, and NC-1-76, are available in all-white porcelain. Black porcelain base is standard on all models.

Features include electric lamp; fully automatic clock and condiment set, built into the backguard; automatic top burner lighter; porcelain enameled grates and burner bowl tray; adjustable disappearing burner cover; roller bearing utensil drawers; porcelain-lined oven with level-slide racks and removable guides; unit control oven valve and heat regulator with safety device; automatic oven lighter; and Rock Wool insulation, varying with the type of range selected.

The two top models in the NA series are equipped with elevating smokeless Broilator, an adaptation of the Norge Broilator stove. Other models are equipped with elevating broiler or drop front broiler.

Two new models have been added to the 1936 Norge washer line, and the four present models have been re-designed and improved. All models in the line are powered with the same Autobuilt transmission, and the same motor and motor mounting. All models require no oiling for at least five years, and are available with friction drive pump. Models 56-G and 76-G are available with gas engine.

Outstanding washer feature is the Autobuilt mechanism, built by Borg-Warner, Norge's parent company. Tubs are constructed of refrigerator porcelain, and all wringers have safety features.

The electric ironer, infant among Norge home appliances, was first marketed in 1935. New models have been added for 1936, with further improvements in design and construction. There are now six models in the line.

Features include double open-end roll, two-speed control, non-sag split heating element, permitting the same or different temperatures at each end of the roll, and adjustable tension. The table-top cabinet serves as utility table when ironer is not in use.

All models are finished in chip-proof enamel, and are available in green, black and white, or chrome and white combinations.

## Coldspot's Cabinet Has 'Billowing' Lines

(Concluded from Page 1, Column 2)

out in porcelain, the price will be \$20 higher.

In addition to these two models there are two "price" models, which do not have the styled cabinets and all of the features that the two other units have. The 4-cu. ft. model in the "price" series will sell for \$94.50, but the price on the 6-cu. ft. model has not yet been announced.

Raymond Loewy's design this year has made use of "billowing" lines to give the effect of massiveness. The door bows out with the result that it takes somewhat the shape of the fore part of a ship, and the same curving lines are followed throughout.

A long, polished metal strip splits the front exterior of the cabinet from top to bottom, and adds to the stylish effect. The large, circular nameplate is at the side, and is done in blue.

Chief among the new convenience features is the Handy-Bin, a dry vegetable storage drawer in the bottom of the cabinet.

Another departure is in the use of flat, stainless aluminum shelves, with a distinctive pattern. Shelf supports are the same as in last year's models.

The row of storage drawers along the bottom of the cabinet interior is retained from last year, the middle one being of porcelain and is built in, the others being of wire. Center drawer has a top of aluminum which is built as part of the shelf above it.

Handles on these drawers and on the ice-cube compartment door are rounded, and have a regular drawer-type handle. Shelves on both sides of the evaporator are folding, so as to provide more bottle space.

Interior electric light has been moved from the back to the front of the cabinet. A glass water cooler and a glass rolling pin are other features.

## 3 District Managers Named by Universal

(Concluded from Page 1, Column 1)

vice president, sold refrigeration direct to stores instead of through distributors. He entered the refrigeration field 14 years ago as Kelvinator distributor at Syracuse, N. Y., and has since been regional sales manager for Seeger Refrigerator Co., St. Paul, and Leonard Refrigerator Co., Detroit.

Mr. D'Arcy organized the first Kelvinator retail commercial sales department in the Detroit branch 11 years ago. Later he was manager of central station refrigeration sales for Westinghouse, and utilities and district sales manager for Stewart-Warner.

Mr. Ryan has been engaged in specialty sales work for a number of years, including considerable refrigeration activity in the central states.

## Kinetic Chemicals Victor In German Patent Suit

(Concluded from Page 1, Column 4)

manufacturer of Germany filed opposition proceedings, bringing before the German opposition department such prior patents as they were able to discover after making a complete investigation of the prior art.

The German opposition department decided that the prior art patents submitted by the German firm were irrelevant, and granted the claims in the same form as they had been held by the German Patent Office.

In the most recent case, the chemical manufacturer filed an appeal which was heard before the appeal department which operates in connection with the opposition proceedings.

After hearing the additional arguments of opposing counsel, the appeal department decided that the claims allowed were entirely valid.

## Bauer Heads Crosley Special Sales Dept.

CINCINNATI—Neil Bauer, former Crosley field sales manager, has been named by President Powell Crosley, Jr. as head of the newly created Special Products Division of Crosley Radio Corp.

The new Crosley electric washers and ironer will be added to Shelvador refrigerators, radios, Coolrests, Icy-ball absorption type refrigerators, Temprator room heaters, and Koldrink bottle coolers to be sold to distributors and dealers through the new department.

With the new products, the company expects to be able to supply appliances for every season of the year, Mr. Crosley said. This will enable dealers to keep salesmen busy.

## Birmingham Ice Co's. Offer Low Terms

BIRMINGHAM, Ala. — Throwing down the gauntlet to Birmingham Electric Refrigeration Bureau, local cooperating ice dealers have inaugurated their ice refrigerator selling campaign early, offering immediate deliveries with no down payment until March 1. After that time FHA financing and 18 months terms are offered.

Ice dealers are also bearing down on the point that they have found it "good business to lose money" selling ice refrigerators whereas electric refrigerator dealers are in business "to make a profit on each sale."

The new model duo-draft ice refrigerators are offered at "one-third the first cost and one-half the operating cost of other types."

Electric refrigerator dealers already have new models on hand, and have mapped out a program to sell 7,000 units.

*Mr. Dealer:—*  
when the excitement is over  
you will find that these three  
points will sell refrigerators

Outstanding size  
and price value

Hermetically  
Sealed Unit

The Freezer Shelf...  
the only New and  
Practical Innovation  
in Refrigeration

**so what?**

SO Gibson deserves your first consideration before you decide on any line. See your Gibson Distributor today or write us for complete information on the Gibson 1936 Dealer Proposition.



# GIBSON

GIBSON ELECTRIC REFRIGERATOR CORPORATION  
GREENVILLE MICHIGAN



## Air Conditioning

### Birmingham Dealers Revive Bureau

(Concluded from Page 1, Column 5)  
M. Fried, engineer, anticipate 24 installations, totaling \$175,000 worth of equipment, in Birmingham in 1936. This compares with 22 installations totaling 646 tons last year.  
Birmingham Electric Co. is cooperating with the dealers, making no air conditioning sales itself. The company's sales floor and windows will be loaned for display of equipment, its sales engineer will assist in making up estimates, and its 10 commercial and 45 residential salesmen will turn over the names of prospects to the dealers. A program of direct mail and newspaper advertising is also planned.

The utility will also assist dealers in the sale of attic fans and commercial ventilation. Estimates are that 50 attic fans at an average price of \$200 each, and \$20,000 worth of commercial ventilation, will be sold this year.

### Railroads to Study Air Conditioning Systems

NEW YORK CITY—Thorough study of the various railway air-conditioning systems now in use will be undertaken soon by the Association of American Railroads. The investigation will be to determine to what extent such equipment can be improved and standardized to lower costs.

### 'Trade Mark' Adopted By ACMA Members



WASHINGTON, D. C.—Air Conditioning Manufacturers Association has just brought out for use by its members a "trade mark" (see illustration above) featuring the initials of the association's name, ACMA.

The trade mark will be used in consumer advertising by member companies of the association.

Membership in the association is now comprised of the following: Baker Ice Machine Co.; Carrier Engineering Corp.; De La Vergne Engine Co.; Frigidaire Corp.; General Electric Co.; Kelvinator Corp.; J. J. Nesbitt, Inc.; Parks-Cramer Co.; B. F. Sturtevant Co.; Vilter Mfg. Co.; Westinghouse Electric & Mfg. Co.; and York Ice Machinery Corp.

### Hotel Men Told How Conditioning Helps Food Business

WICHITA, Kan.—Hotels will find it a good business practice to air condition all their cafes, banquet rooms, and restaurants, Alonzo H. Gentry, Kansas City, Mo., architect, told members of the Missouri-Kansas-Oklahoma Hotels Association at their annual meeting here recently.

"Almost universally, where such installations have been made, the increase in sales has more than warranted the installation," Mr. Gentry said.

"I don't believe in partial modernizing," he declared. "I cannot help but feel that the modernization of one particular part of a building is a mistake, because contrast with the rest of the building is too severe and the reaction is not good."

### Signal Corps Conditions Telephone Exchange

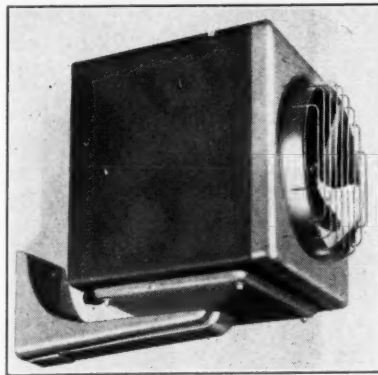
FORT RILEY, Kan.—"Black blizzard" dust storms here in recent summers have brought about the air conditioning of the telephone exchange offices of the U. S. Signal Corps at Fort Riley here.

The 7½-ton system put in by Westinghouse was installed to protect the equipment from drought storms.

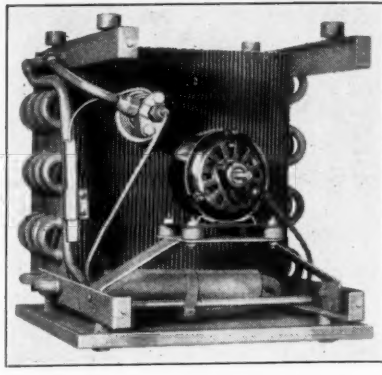
### Larkin's Chicago Branch Sets Sales Record

CHICAGO—Sales of the Larkin Refrigerating Corp.'s branch office here for the week ending Dec. 21, were the highest made in the history of this branch, states M. P. Fugel, head of this office.

### Key Data on Lipman Unit Coolers



Mounted on a wall bracket.



"Insides" of the unit cooler.

	M-10C	M-12C	M-16C	M-10P	M-12P	M-16P
Fan diameter	10	12	16	10	12	16
Air volume c.f.m.	350	500	1,000	400	650	1,350
Fan motor hp.	1/80	1/40	1/20	1/80	1/40	1/20
Capacity (B.t.u. per hour)*	7,100	11,700	17,900	2,340	3,550	4,640

\*Cooling capacity of the air-conditioning models is given in B.t.u.s per hour with entering air at 80° F. dry bulb and 50 per cent relative humidity and with a saturated refrigerant temperature of 40° F. For product cooler the capacity is given in B.t.u.s per hour under conditions of a refrigerant temperature of 20° F. with a box temperature of 34° F.

### New Firm to Market Frigidaire & Delco Conditioners

(Concluded from Page 1, Column 4)  
company will be in Dayton. Sales headquarters for all eastern states will be located here.

Present executives of Frigidaire Corp. will occupy important posts in the new company, ELECTRIC REFRIGERATION NEWS was informed by a spokesman of the company in Dayton.

E. G. Blechler, president and general manager of Frigidaire Corp., will become president and general manager of Delco-Frigidaire; W. F. Armstrong, Frigidaire vice president and assistant general manager, will occupy those same positions in the new company. Both men will retain their present posts in the Frigidaire organization.

Vice president and general manager of Delco-Frigidaire will be J. J. Nance, former sales manager of Frigidaire's air-conditioning division, who leaves his position with Frigidaire to accept the appointment. Thomas L. Lee, vice president of Delco Appliance Corp., Rochester, N. Y., will also be a vice president of Delco-Frigidaire.

Both Frigidaire and Delco Appliance have been active for several years in the design, manufacture, and sale of air-conditioning equipment. Frigidaire concentrating upon the type of products used for cooling and dehumidification, and Delco Appliances supplying products for automatic heating, humidification, and purification of air.

Frigidaire has been one of the leading manufacturers of air-conditioning units for domestic and commercial applications, as well as a large supplier of conditioning equipment to railroads. Delco has been identified with heating equipment, oil burners, and oil furnaces, its latest product being a unit for heating, humidification, and air purification.

With the progress made by both of these companies in their fields, and the possibilities which air conditioning offers in home, store, office, and industry, Mr. Sloan said it had been thought best to coordinate development and sales efforts under a single company, to market equipment for year-around use.

"In establishing this new company," Mr. Sloan said, "General Motors is encouraged by the thought that air conditioning, in its complete phase, namely, the conditioning of air the year 'round, is needed in virtually every type and size of residential, business, or industrial building. We have faith in the possibilities of this new industry, and we believe that through this new organization the corporation will be able more aggressively to develop, manufacture, and market year-round air-conditioning equipment that will be of service to mankind in all climates."

### Printing Co. Conditions Conference Room

DENVER — Bradford-Robinson Printing Co. here has installed a small air-conditioning unit to serve a unique type of conference and entertainment room just being completed. Equipment used is a small Freon unit, furnished and installed by York Ice Machinery Corp.

The room, a new departure in printing plant design, occupies 25x50 ft. on the third floor.

The conference room proper is elaborately appointed. Windows of stained art glass each depict some phase of the history of printing. Walls are lined with bookcases, part of them concealed behind huge panels.

The room is expected to serve many purposes. When out-of-town friends and customers are to be entertained, they can be brought here rather than to a hotel. The facilities are available to them whenever they visit the city.

### Lipman Produces Line Of Unit Coolers

(Concluded from Page 1, Column 3)  
free air passage and reduces icing up at below-freezing evaporator temperatures.

All models have a built-in heat interchanger which is said to provide greater refrigerating capacity by sub-cooling the liquid refrigerant, and to reduce suction line sweating by warming up the suction vapor with the incoming liquid.

A thermostatic expansion valve provides for unit cooler operation either singly or in multiple. The power element is hermetically sealed and welded into a single part by the atomic hydrogen process, forming a sealed unit which is claimed to hold its thermostatic charge permanently.

Fan and motor are located at the front or air outlet side of the unit. Air is pulled, not pushed, through the evaporator. Whirling motion imparted to the air stream is said to quickly mix the cooled air with the surrounding air.

Difference between the comfort-cooling and product-cooling models is principally in the design of the fans. Those for the air conditioners have the full, curved blades.

The fan-type motor is totally enclosed, with 6-ft. rubber-covered cable and attachment plug. The motor is suitable for continuous operation, 24 hours a day. The fan guard at front of unit is removable to permit oiling.

These unit coolers may either be suspended from the ceiling with hanger rods and straps, or mounted on a wall by means of a bracket attachment.

Liquid and suction line connections project through the shell at the rear of the unit and terminate in S.A.E. male flare fittings, capped and sealed with flare tube nuts.

### AIR CONDITIONING and COMMERCIAL WATER COOLING (Coolers Only)

**SHELL & TUBE TYPE**  
1-100 Tons  
1-4 Compressors  
F-12—Methyl

**STORAGE TYPE**  
All Sizes

**WATER FILTERS**

**FILTRINE MFG. CO.**  
Brooklyn, N. Y.

### REFRIGERATOR DISPLAYS



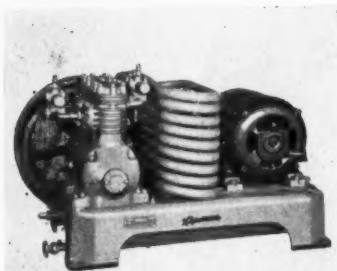
NEW 1936 LINE  
Artificial Food Products For Refrigerator Display. Permanent. Natural. Durable.

Most complete line on the market. 50 pieces for selection.

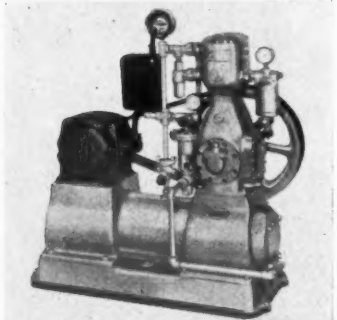
Kits packed to your requirements. Write for our attractive proposition.

**ROMAN ART CO., INC.**  
2700 Locust St., St. Louis, Mo.

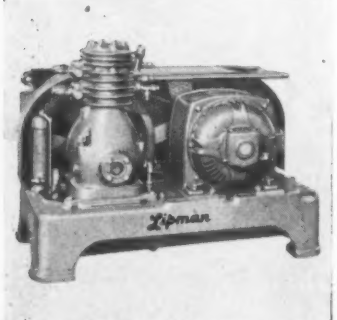
## HANDLE A COMPLETE LINE THAT IS PRACTICAL - DEPENDABLE - PROFITABLE



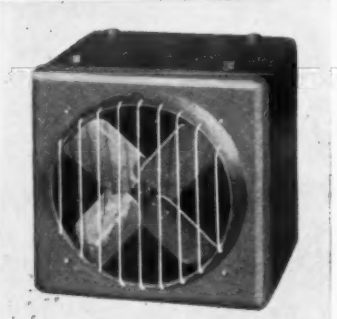
LIPMAN FREON AUTOMATIC REFRIGERATING MACHINES



LIPMAN AMMONIA TYPE REFRIGERATING MACHINES



LIPMAN METHYL CHLORIDE REFRIGERATING MACHINES



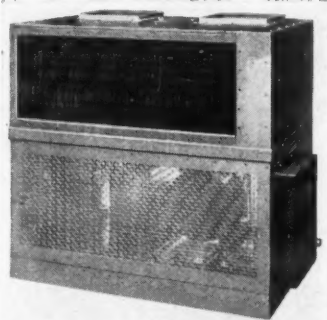
LIPMAN PRODUCT COOLING BLOWER TYPE UNITS



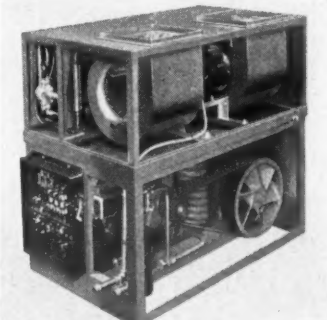
The LIPMAN line provides its distributors with a complete range of types and sizes of commercial refrigeration and air conditioning equipment that enables them to bid successfully on all kinds of jobs ● A line backed by experienced engineering, practical design, precision workmanship and the resources of a company that for two decades has devoted itself exclusively to commercial refrigeration and air conditioning manufacture ● A line that has proved its reliability, efficiency and economy in thousands of installations ● A line of Freon, Methyl Chloride and Ammonia refrigerating machines, in sizes to meet every need ● A line of air conditioning equipment that meets every requirement for comfort cooling, ranging from funeral homes to railroad coaches ● A complete line of accessories including Dischin Evaporators, Pipe Coils, Water Coolers, Water Valves, Expansion Valves, Liquid Line Filters, Heat Interchangers, Evaporators, Condensing Units and Low-Side Equipment.



If you want to handle a line that gives you every modern advantage toward securing large-volume, profitable refrigeration and comfort cooling business write for information covering the LIPMAN line and distribution plan.



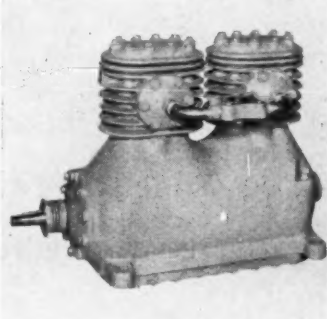
SELF CONTAINED AIR CONDITIONER



SHOWING THE LIPMAN'S PARTS AND CONTROLS



LIPMAN COMFORT COOLING BLOWER TYPE UNITS



LIPMAN RAILROAD TYPE AIR CONDITIONING UNIT

## GENERAL REFRIGERATION SALES COMPANY

Dept. F-1, Beloit, Wisconsin, U.S.A.



## New Year-'Round Conditioner



Room-type units of this type are used in the installation which is described below. Water is used for cooling and heating.

### 7 Miller Room Conditionair Units Used In Finance Company Installation

LOS ANGELES—Seven standard room units made by the Miller Conditionair Corp. of this city furnish complete air conditioning for the new, one story (with mezzanine) concrete structure at 1138 S. Broadway here which is occupied by a finance company.

The room-type units are served by a central refrigeration unit and a central hot water generator.

Four of the conditioners are located in the main office in the front of the building, and one in each of the three rear private offices.

The refrigeration unit is located under the stairs that lead to the mezzanine, and the hot water generator is located in one of the toilet rooms near the center of the building.

Each Conditionair room unit contains a propeller-type fan driven by a 1/20-hp. motor; a spray-type, atomizing humidifier, a finned copper tube heating element; a finned copper tube cooling element; and a wool felt pocket-type air filter.

Cooling and heating elements are combined in a single physical unit having common fins, two banks deep, but with entirely separate tubing, the heating coils occupying the position of the first bank, the cooling coils that of the second.

A duct through the wall back of each unit allows 100 per cent outdoor air to be drawn through the unit. If desired, a circled louvre in the front of the unit may be opened to allow recirculation of the air in the room.

Opening this front louvre for recirculation also turns a damper that cuts off about half the area of the outdoor air inlet.

Incorporated in each unit is a storage chamber for disinfecting, perfuming, or medicating the air. Aromatic material from the chamber is drawn into the plenum chamber by the fan and mixed with the air discharged by the unit.

Chilled water for the cooling element and hot water for the heating element is supplied to each room unit through copper tubing insulated with wrapped felt and laid on the ground under the cement floor. Water for the humidifier nozzles is taken from the hot water lines. A copper tubing waste line from each room unit runs under the floor to a covered sump in the floor of a toilet room.

City water pressure is used to send the chilled or hot water to the room units, from where it is wasted to the drain after performing its function.

For cooling purposes, the city water supply is connected to and passes through a pair of twin heat exchangers in series. The primary side of these heat exchangers is chilled by a direct expansion system, a 3-hp. Bedell condensing unit furnishing the refrigeration.

The Bedell unit is set to reduce the temperature of the water passing through the heat exchangers to 40° F. Copper tubing (3/8 inch) carries the cold water from the heat exchanger outlet to the Conditionair unit.

Amount of chilled water passed through the cooling element is controlled by a valved inlet and a metered orifice outlet. Average maximum water consumption for cooling is rated at 16 gallons per hour.

Water condensed from the air in the cooling process and excess water from the humidifier nozzles is collected in a drip pan connected to the drain line that serves the cooling and heating elements.

For heating, a Watrola gas-fired automatic instantaneous water heater of 4.1 g.p.m. (60° F. rise) capacity, is used. Located in the corner of one of the toilet rooms, this heater is connected to city water supply in the same manner that it would be connected if it was a domestic hot water heater.

Opening a valve at the inlet of the heating element of any room unit operates the automatic instantaneous heater in exactly the same way as turning on a hot water faucet.

The hot water, forced by city pressure, passes through the Conditionair's heating element, after which it is wasted to the drain through a metered orifice. This orifice is sized to allow a maximum average consumption of 16 gallons per hour.

Fan motors are plugged into convenience outlets. A rheostat permits fan operation at 450 r.p.m., 900 r.p.m., and 1250 r.p.m., at which speeds the fan is rated to handle 100, 200, and 300 c.f.m. of air.

Unusual provision is that of water cooling for the rheostat and motor by means of encircling coils of 1/2-inch cadmium-plated copper tubing around each, through which water from the chilled water line passes.

One of the chief claims made for the installation is its flexibility, as each Conditionair operates as an independent unit. Moreover, the output of each unit may be varied independently by changing the fan speed, reducing or increasing the quantity of cold or hot water passing through the elements, or changing the setting of the recirculating damper.

Conditionair cabinets are of furniture steel finished in walnut; the castings are of aluminum; cooling and heating coils are copper tubing, cadmium plated; and the steel parts are cadmium plated.

### N. Y. Code Hearing to Resume Feb. 5

NEW YORK CITY—Proposed code of New York City relating to refrigerating systems, as amended following the three recent open hearings, will again be presented for discussion at a hearing to be held next Wednesday, Feb. 5, at the Bureau of Combustibles in the Municipal building.

Representatives of manufacturers and groups that have an interest in the code have been invited to attend.

## New Air-Conditioning Developments to Be Discussed & Exhibited at Chicago Meeting

(Concluded from Page 1, Column 1) afternoon session, members of the A.S.H.V.E. heard a report on "Saving Effected by Storm Sash," by Prof. A. P. Kratz and S. Konzo, concerning the research residence at University of Illinois.

Wednesday's A.S.H.V.E. meetings also will include several subjects of interest to the air-conditioning field. The morning session features papers on "Subjective Reactions of Human Beings to Certain Outdoor Atmospheric Conditions," by C. E. A. Winslow and L. P. Herrington, and "Minimum Ventilation Requirements from the Standpoint of Body Odor," by C. P. Yaglou.

At a joint afternoon session of the society and the warm air heating association in Hotel Stevens, J. E. Emswiler and W. C. Randall will present a paper on "Room Surface Temperature of Glass Windows," and Mr. Konzo will present a progress report on the use of water from the city mains in cooling the Illinois research residence.

Thursday meetings of both organizations will include air-conditioning topics. F. C. Houghton and Carl Guterbert presenting to A.S.H.V.E. members a paper on "Comfort Standards for Summer Air Conditioning," and Platte Overton describing a "Combination Furnace Heating and Cooling Plant" to the warm air heating and air-conditioning group.

A complete report of air-conditioning equipment shown by various companies at the International Exposition, and on the sessions of the two associations' meetings devoted to air conditioning, will be published in next week's issue of the News.

Companies in the refrigeration and

year-around air-conditioning field who have exhibits at the show are:

Aerofin Corp., Air Controls, Inc., Alco Valve Co., Inc., American Radiator Co., Armstrong Cork Products Co., Automatic Products Co., Automatic Valve Corp., Baker Ice Machine Co., Barber-Colman Co., Brown Instrument Co., Bryant Heater Co., Buckeye Blower Co., Buffalo Forge Co., Burge Ice Machine Co.

Carbondale Machine Corp., Carrier Engineering Corp., Century Electric Co., Century Engineering Corp., Dayton Rubber Mfg. Co., De La Vergne Co., Delco Appliance Corp., Detroit Lubricator Co., Dole Valve Co., Electromatic Corp., Emerson Electric Mfg. Co., Fairbanks, Morse & Co., Fox Furnace Co., Frick Co., Julien P. Friez & Sons, Inc., Frigidaire Corp.

Gar-Wood Industries, Inc., General Electric Co., Henry Valve Co., Holcomb & Hoke Mfg. Co., Howe Ice Machine Co., Ilg Electric Ventilating Co., Imperial Brass Mfg. Co., Johnson-Manville, Johnson Service Co., Kelvinator Corp., McCord Radiator & Mfg. Co., Jas. P. Marsh Corp., Mercoid. Milwaukee Valve Co., Minneapolis-Honeywell Regulator Co., Mueller Brass Co., National Regulator Co., John J. Nesbitt, Inc., Norge Corp., Owens-Illinois Glass Co., Penn Electric Switch Co., Perflex Controls Co., Russell Electric Co., Inc.

Sangamo Electric Co., Spencer Thermostat Co., B. F. Sturtevant Co., Surface Combustion Corp., Thermal Units Mfg. Co., Timken Silent Automatic Co., Uni-Flow Corp., U. S. Radiator Corp., Vilter Mfg. Co., Watts Regulator Co., Westinghouse Electric & Mfg. Co., Williams Oil-O-Matic Heating Corp., York Ice Machinery Corp., Young Radiator Co.

## Fedders Units Solve Hospital Problem

DALLAS — Two unusual cooling problems—in the nursery and the operating room at St. Baylor University Hospital—have been solved at low cost by the use of ingenuity and Fedders Forcedraft unit coolers, reports Leo J. Freitas, manager of Fedders' factory branch office here.

This matter of nursery room temperature, say hospital officials, is a vital factor in keeping very young babies well. When room heat rises above normal body temperature, these new-born babies acquire what might be termed "induced fever"—that is, their body temperature will become the same as that of the room, even though they have no physical disorders.

A unit cooler would solve the problem, but there was no suitable location for a high side to be used with it. There was, however, a circulating cold water line with 45° F. temperature available, just inside the nursery door. So a Model 318 Fedders unit cooler was connected to this line, and installed on a table stand.

Tests showed an immediate temperature drop of 14 to 16° F., ample to bring the room temperature below the danger point, even on hot days.

A second interesting and effective use of a unit cooler was worked out for cooling the hospital's operating room. A tank for ice water was mounted on a small truck, along with a Model 214 unit cooler. A small motor-driven circulating pump, connected between the tank and the unit cooler, circulates the ice water through the cooler and back over the ice.

Shortly before the operating room is to be used, the cooler and pump motors are plugged in and the room is brought down to a comfortable working temperature.

### 20 QUALITY FEATURES (No. 5)



Servel's Hardened Wrist Pins are precision-ground to an exact fit in diamond-bored rod bushings, and permanently locked in position.

## IN AIR

## CONDITIONING...

as in commercial refrigeration, Servel's 1936 products are built to render dependable service at the lowest possible over-all cost... The quality features that distinguish Servel's line have always "paid their own way" in reduced cost of operation and upkeep... Dependable merchandise at a fair price protects both the dealer's profit and the user's investment.

## SERVEL COMMERCIAL REFRIGERATION

SERVEL, INC. Commercial Refrigeration Division EVANSVILLE, IND.

This modern 33-acre plant is the home of Servel Commercial Refrigeration and the world-famous Electrolux, the Servel Gas Refrigerator



There is no Substitute for Experience

### REFRIGERATION • Servicing •

Practical Instruction—Well Equipped Shops  
Day & Evening Classes—Booklet on Request  
New York YMCA Schools  
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### LARKIN COILS

Always LEAD • SERVICE • FEATURES • PRICE

### "GENUINE DETROIT"

HEATING, REFRIGERATING AND AIR CONDITIONING CONTROLS

DETROIT LUBRICATOR COMPANY  
DETROIT, MICHIGAN, U.S.A.  
Canadian Representative—RAILWAY AND ENGINEERING SPECIALTIES LIMITED, Montreal, Toronto, Winnipeg



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## Is the Industry Going Into a New Stage Of Development?

THROUGH what stage of development will the refrigeration industry pass in 1936? Is the industry entering into a totally new phase of product or marketing development, or is it going to repeat some previous period in its history?

For those who would do some forecasting on this score, there is available a concise outline of the various stages in the refrigeration industry's development which they can use as a background for their prognostications. This outline was prepared by H. W. "Hike" Newell of the Geyer, Cornell & Newell agency which has the Kelvinator and Leonard accounts, and presented by him at recent conventions.

Mr. Newell has been active in the electric refrigeration industry for the past dozen years, starting as a retail salesman with the Frigidaire organization and rising to the position of vice president in charge of sales, which post he left last year to become a partner in an advertising agency.

This short picture of Mr. Newell's qualifications is presented only because of the fact that present-day historians of industry are generally "outsiders looking in" who get their facts second hand.

First stage in the industry's history was naturally one of "experimental and engineering development." Mr. Newell dates this period from 1915 through 1922 without meaning to infer, of course, that there was no experimental or engineering development either before or after these years.

Kelvinator was the leader among those companies active in the industry at that time, says Mr. Newell, because of the progress it made in bringing the small, air-cooled, household refrigeration system to good performance levels.

Next period, 1923-1928, was one of "industry building." The public had to be sold on the idea of electric refrigeration, and things it would accomplish for them.

Leadership during this period, grants Mr. Newell, went to Frigidaire Corp. because that organization did by far the most aggressive job of promoting the idea to the public by means of extending its sales organization, using big advertising campaigns, and continually driving home the advantages of electric refrigeration by every means at its command.

"Product development and improvement" is the title which Mr. Newell gives to the third period of the industry's history, which he sets in the years 1929 and 1930.

By this time people were becoming pretty well sold on the idea of electric refrigeration as something which they ought to have in their homes, so the question naturally became one of which refrigerator they should buy.

Manufacturers quickly became cognizant of this attitude and scuttled about to make refinements which would make theirs the "better" refrigerator. General Electric, because it was fast to take the cue and put emphasis on its "not one cent for service" and quiet operation stories, grabbed off the leadership during this period, avers Mr. Newell.

Followed then a period which is apparently inevitable in the history of consumer-goods industries.

It was the period of "price competition." This phase of the industry's development was marked by an influx of what Mr. Newell chooses to refer to as "cat and dog" manufacturers. Small manufacturers, believing that the experimental stage was over, and attracted by the glittering prospect of a "depression-proof" industry, came in with "jerry-built" merchandise sold strictly on price.

At one time during this period there were as many as 250 active manufacturers of household electric refrigerators, he claims.

Major manufacturers met the situation by cutting their prices and introducing "price leaders" in their lines. This antidote proved effective, declares Mr. Newell, so that by 1934 the industry had been pretty well cleared of the "cats and dogs" and the price situation was no longer quite the headache it had been in the two previous years. From an individual company standpoint, Norge advanced to take a rank among the leaders during this period.

To Mr. Newell's way of thinking, the years from 1933 through 1935 have been one of "stabilization" for the electric refrigeration industry. Prices were returned to normal levels, and the industry continued to increase its sales each year. Crosley and Westinghouse made large gains in this period. A new factor entered the field in the form of the mail-order houses.

So much for the stages of the industry history through the past year. But what of the future?

The buying public, he thinks, may not have demonstrated clearly just what it is looking for in electric refrigeration, but it has indicated in its buying habits that there are some things that it doesn't want—notably, an unreliable product and an unreliable manufacturer. Prospects are growing wary of buying a potential "orphan" piece of equipment, says Mr. Newell.

Judging by the character of the 1936 lines already introduced and from information on those not yet presented, this year will be one in which product development is going to be emphasized. To Mr. Newell "product development" does not mean merely styling, small refinements, and the addition of several "gadgets," but real built-in quality and features that will make the refrigerator more efficient in its function of food preserving, and more convenient to use.

The reason for this emphasis on product development, in Mr. Newell's belief, is that the public wants a reliable product with more usable features—and points to the experience of the automobile industry for an analogy.

There are today no "low price" automobiles in the sense of the \$300 and \$400 cars that were on the market some years ago, and Henry Ford, long the leader in building cars that were sold primarily on a price appeal, has shifted the emphasis in his manufacturing and selling program to quality, style, and features, declares Mr. Newell.

And as he sees it, the public is going to put a premium on these same factors when it selects an electric refrigerator.

## Letters

### Prospective Distributor for Room Coolers

1626 Stevens St.  
Louisville, Ky.

Editor:

In my conversation recently with Mr. Paul Tafel of Tafel Electric Co. of this city, he showed me a copy of your interesting paper and suggested that you were in close touch with refrigeration and air-conditioning activity and that I should write you a letter. I am very much interested in the sales activity of air-conditioning units—particularly the individual room units. I am more interested in obtaining a distribution or direct representation for a product of this type in this territory and will appreciate any suggestions that you may have to offer regarding such a product, that might be available.

For your information, I have had some 15 years' experience in sales work—personal sales, sales promotion, as well as in an executive capacity. I am 44 years old and am able to finance any reasonable requirement.

I shall appreciate very much any information or contacts that you may pass on to me and if I am ever in a position to reciprocate you may rest assured I shall do so. R. E. LUNCH.

Answer: For names of manufacturers of air-conditioning equipment, I would suggest you consult the 1935 REFRIGERATION AND AIR CONDITIONING DIRECTORY in which, pages 150 through 157, is given a complete list of these manufacturers, divided into all-season systems, summer systems, and winter systems.

ELECTRIC REFRIGERATION NEWS is the weekly newspaper of both the refrigeration and air-conditioning industries. Every issue of the NEWS contains considerable air-conditioning information with one issue each month devoted especially to the subject of air conditioning. These special issues report news of interesting installations and new developments in the field, as well as engineering, statistical, and service data.

### Factors Affecting Usable Life of Refrigerators

Dry-Zero Corp.

High Duty Insulation and Products  
Merchandise Mart, Chicago

Editor:

I was much interested in reading the letter of Mr. Wm. R. Very, Director of Air Conditioning and Refrigeration in the Philadelphia Electric Co., and your reply, both dealing with the subject of "retirements" of old electric refrigerators.

I would like to suggest to Mr. Very and any other of your important readers that might be interested, that the usable life of an electric refrigerator can now be analyzed and predicted to a considerable extent.

The usable life of an electric refrigerator has to be considered in two aspects:

(1) The length of time during which it will yield useful refrigerating temperatures in the food space with reasonable economy of operation, and  
(2) The length of time it will yield such temperatures at all (though operating cost may be as much as treble).

I take it that the former usable life is what Mr. Very has in mind.

Assuming this to be the case there are three principal factors upon which the economical longevity of the refrigerator depends:

(1) The complete refrigerating unit;  
(2) The insulation; and  
(3) The inner and outer structure and finish.

It is a pretty safe statement to say that in the great majority of reputable refrigerators built today the refrigerating unit is well built of good materials and will not be the first factor to fail. It is probably safe to say that in the majority of cases the refrigerating unit if not abused should have a life of 10 or 12 years and in some cases longer.

In the matter of structure there have been some internal (shelf) weaknesses which would not indicate as great a longevity as the above but, after all, constitute minor repairs only. As to finish, most refrigerators today stand the concentrated life test very well. There are, however, one or two glaring exceptions under this test.

When we bring examination for long life, however, to the insulation in the electric refrigerators today, it has been and is easily at any time demonstrated that here there is a terrific variance. Under the standard test for life of the operating efficiency of an electric refrigerator many notable makes show a limit of four years and some less than this.

We have been perhaps alone in developing tests so standardized that any competent laboratory can make them, which will very definitely indicate the long or short life of the

insulation of an electric refrigerator (including all "wrappings" etc.).

Such refrigerators—in spite of frequently having fine names behind them—cannot be regarded as having any but a short life as far as reasonable economic performance goes. After three or four years they will still maintain for some time reasonable refrigerating temperatures but at a cost of operation which, instead of providing an economical household appliance, has become a wasteful extravagance. Unfortunately the user seldom knows it because he has never put a watt meter on his refrigeration line, in 99 per cent of the cases.

This matter of the economically useful life of an electric refrigerator is one which should begin to have the real study of those interested in stable and permanent business. Eventually it will largely govern replacements and replacements will be one of the big factors of new business in this field. It would seem, therefore, that the man who is looking ahead in this industry should begin thorough investigation of this subject. We have been at it hammer and tongs for five years and have a good deal of definite and useful information on the subject, the only kind which is of real value—that which has been fortified and proven by competent test analyses.

In addition to the several manufacturers who have their eye on the future and have availed themselves of this data and knowledge, it is also wholeheartedly at the disposal of Mr. Very or anyone else who is seriously interested in the future of the industry. It will prove interesting.

HARVEY B. LINDSAY, Pres.

### Distributor Commends Editorial on "New Deal"

Ludwig Hommel & Co.  
600 Second Ave.  
Pittsburgh, Pa.

Editor:

I wish to send you a word of commendation on the admirable editorial in your December 25 issue. It states the problem very clearly in a language understood by the average person and is written in the able manner of all your editorials.

If every voter in this country could read that editorial, it would be a great help toward making the American people see the conditions as they are.

I really believe it would be a splendid thing if you could reprint it in the form of a little leaflet of some kind for general distribution.

LUDWIG HOMMEL.

### We Suggest He Buy Two Refrigerators

The Heald Machine Company  
Grinding and Precision Boring  
Machines  
Worcester, Massachusetts

Editor:

We have received a letter from our Czechoslovakian representatives, Kocian & Nedela, in which the director of one of their customer's plants would like to purchase an American made refrigerator.

In their letter to us, they give the following requirements:

"The family in question is frequently changing its residence and due to this circumstance they would prefer to have this refrigerator with arrangement for operation on kerosene, gas, and electricity, combined so that e.g. in places where neither electricity nor gas is available, the refrigerator can operate on kerosene. If such an arrangement is not available, then a combination of two means of drive, e.g. gas and kerosene or gas and electricity, etc. would be satisfactory."

"We take this opportunity of asking you if you will kindly secure and send us a circular covering such refrigerators with full specifications as well as let us know the prices."

If you know of any manufacturer who makes this type of refrigerator, we would appreciate if you would tell us who they are so we may communicate with them. We have already written Servel and Crosley, as the person interested in the refrigerator specified a Crosley and Crosley referred us to you and Servel as possible sources of information.

C. T. APPLETON,  
Sales Engineer.

### Question Bureau Needed?

W. R. Douglas  
217 Holly Ave., Takoma Park, Md.

Editor:

Please place my name on your catalogue mailing list for service men.

I would like to take a minute of your time to say how remarkable your publication is. I have never seen a magazine in any field cover an industry as yours does the refrigeration world. As soon as it arrives I read it and make index cards of all articles I am interested in and the week they appear in. It is a quick way to any answer I need. I am looking forward to receipt of the service manual.

I hope some day you will establish a bureau where we can have our various troublesome questions answered for a nominal fee.

W. R. DOUGLAS.

(Service and repairs only to mechanical refrigerators, oil burners, air conditioners.)

### Like Trying to Keep House When Wife's Away

Miller-Scheln Co., Inc.  
114 South Third St.  
Stevens Point, Wis.

Editor:

Attached hereto is our check for \$3 to cover a subscription for one year to your indispensable ELECTRIC REFRIGERATION NEWS.

We have been off your books for a couple of months, and it has been like trying to keep house yourself, while the wife is away. So we are appealing to you to come back to our folds so that we may keep an eye on you, and know what is going on in this industry of ours. A. W. SCHEIN.

### New Jobber Wants Parts and Supplies

Refrigeration Specialty Co.  
955 North 26th St., Milwaukee

Editor:

Having recently entered the refrigeration jobbing business we are interested in any new devices or parts that are being manufactured. If you have a mailing list of concerns making refrigeration accessories or any thing connected with refrigeration, kindly inform us how we may obtain such a list. You may also put us on your mailing list for manufacturers. We invite correspondence. At present we particularly want names of concerns making refrigeration gas masks.

W. FELKER.

### We'll Save His Neck

The Electric Equipment Corp.  
Commercial Division  
Davenport, Iowa

Editor:

For some unaccountable reason the Nov. 13 issue of ELECTRIC REFRIGERATION NEWS has gone astray and we can not locate it. For that reason the writer would appreciate your sending us a new copy immediately.

Our Mr. Bengston has done everything but broken his neck to locate it. However, without success.

Thanking you in advance for your prompt shipment.

H. R. PLATH, Sales Mgr.

### Have Serviced Refrigerators In Arkansas Since 1923

"Just a line to you to make sure you include us in your new REFRIGERATION DIRECTORY listing as an independent service company installing and servicing by contract any type of refrigerating equipment."

"Have been in the refrigeration business here since 1923 and have installed and serviced equipment in practically every city in this state. Have been an avid reader of your publication REFRIGERATION NEWS for a number of years and wish to take this opportunity to congratulate you on the excellent job you are doing."—E. R. Arledge, Refrigeration Service-Sales, Engineering and Installation, P. O. Box 286, Pine Bluff, Ark.

### Fatherly Interest

"Enclosed find 10¢ stamps. Please send copy your magazine. Am interested in statement in your advertisement in Advertising Age, Jan. 13, about 760 patents per year in electric refrigeration. My son sells G-E refrigerators."—Melville Snowden, Ph. Morton, 828 Wade St., Cincinnati, Ohio.

### Independent Service Men Want Catalogs

Grover A. Townsend  
Refrigeration Technician  
All Makes of Electric Refrigerators  
Installed—Serviced—Repaired  
Salamanca, N. Y.

Editor:

I wish to express my gratitude for your fine paper. I would rather miss a square meal any day than be without my copy of the ELECTRIC REFRIGERATION NEWS.

I will appreciate it very much if you will place my name on the mailing list of service men which I read that you are compiling.

"Please enter our name and address on your mailing list, to receive catalogues and literature which is released from manufacturers from time to time."—Capital Refrigeration Service, 3034 So. Trumbull Ave., Chicago, Ill.

"Also put me on your mailing list catalog. I will pay any small mailing charges."—George S. Montague, General Electrical Refrigeration Service Co. of Queens, 113 200th St., Queens, L. I., N. Y.

"Kindly place my name on the mailing service that you are forming. Many thanks."—J. M. Feinberg, S-O-S Radio Service Shop (Sales and service), Feinberg Bldg., Quincy, Ill.

"I would like to be placed on the catalogue mailing service. I am a subscriber to your paper."—Bohn's Refrigerator Service, 108 S. Williams, Crystal Lake, Ill.



## Comment

By F. M. Cockrell

### There Will Be 53 Issues of The News This Year

Apparently 1936 is going to be a year of superlatives! Consider these examples:

During the past week new sub-zero temperature records have been reported for many cities.

Readers of the News, whose subscriptions run with the calendar year, will receive fifty-three issues during 1936. Thus, you will get an extra issue without charge, free, gratis, and for nothing.

Please note that you have already received five issues during the month of January. (This year there are five Wednesdays in January, April, July, September, and December.)

### Five Pay Days in February

But here is a rare one. There will be five pay days in February, that is, if Saturday is your pay day.

According to a statistician down in Bloomington, Ind., the phenomenon of five Saturday pay days in February is so rare that it has happened only five times in the Nation's 160 years of independence.

The last time February had five Saturdays was in 1908; before that in 1812, 1840, 1868, and 1896. After this year, it won't occur again until 1964.

There will be five Saturday pay days in three other months this year, namely May, August, and October.

### E. N. Dean, Salt Lake City

At the recent Kelvinator distributors meeting in Detroit, I had the good fortune to sit next to E. N. Dean of Flint Distributing Co., 255 East 3rd South, Salt Lake City, Utah.

Mr. Dean handles air conditioning engineering and sales and is also supervisor of commercial sales. He is chairman of the Salt Lake City Electrical Dealers Association. He has the distinction of having installed the first Kelvinator theater air-conditioning job in the country.

He told an interesting story about how he happened to get the job of cooling the Gem theater.

He had previously sold a 10-hp. Kelvinator air-conditioning installation to the Broadway Drug Store. (See pictures below on this page.)

One day the theater owner telephoned to ask him if he could drop in sometime soon to talk air conditioning. Mr. Dean carefully considered the matter (for a period of half a second) and replied that he thought he might be able to find time to discuss the subject that afternoon.

So, after straightening up his desk (by slamming the center drawer shut), and after putting on his hat (half a block down the street), he leisurely sauntered over to the theater (as fast as he could run).

### Without Competition

The theater owner proved to be a man of few words and definite convictions. He came to the point by stating that what he wanted was "a job of air conditioning just like the Broadway Drug Store's."

Thereupon Mr. Dean made the proposition that if the theater owner wanted a first-class job at a fair price, he could get it by omitting the customary bidding and price whittling procedure.

Whereupon Mr. Dean received an order, without competition, which totaled eight thousand dollars.

The theater job has a Kelvinator compressor, of course, with 20-hp. motor, producing 26 tons of refrigeration. Trane pre-cooling coils are used, with 60 degree water running through the coils before going to the condenser. The filters are Owens spun glass.

In addition to a model job to which Mr. Dean can point with pride and one which brought him a fair profit, he

gets a free advertisement every day in three newspapers.

The line "Kelvinator Air Conditioned," appears immediately under the name "Gem Theater" in the daily announcement of attractions.

I take for granted that Mr. Dean is a man of standing in his local community. And getting a job like that means so much satisfaction to everybody concerned. I often wonder why so many salesmen have the idea that price is the only thing a buyer thinks about.

### Value of Confidence

We all like to do business with people we can trust and especially so when it comes to buying something entirely new in a field where we have had no experience and therefore no knowledge of values.

When we start out to buy something which means a sizeable investment and when we are self-conscious of our inadequate knowledge of competitive values, we earnestly want to meet someone who can be trusted.

So we listen to various salesmen, puzzle over the relative merits of products, and try to get our money's worth and avoid getting stung.

### Why We Trust a Man Who Has Faith in Himself

Hasn't it been your experience, just as it has been mine, that we often wound up by buying the highest priced article simply because the dealer seemed to be more substantial, more reliable, and more trustworthy?

If we analyze our own feelings in making a purchase of that kind, we have to admit that we were hopelessly confused about the merits of the products, because of our inexperience and inability to judge the quality of unfamiliar merchandise.

Therefore we put our trust in the salesman, instead of relying upon our own judgment, and we found it so much easier to trust a man who has enough faith in himself and his product to hold out for the highest price in a competitive market.

### Typographical Error

In a recent issue there was a typographical error in this column of "Comment," which I did not discover until receiving a letter last week with the following clipping attached:

Don't Look for Easy Money in Air Conditioning

"The refrigeration business is no place for the fellow who is looking for something soft. The opportunists who rushed in looking for easy money back in the early days soon found themselves lost in the dust.

"I have an idea that it will work out about the same way with air conditioning.

"The other day somebody said that the plumbers and steam fitters are looking forward to air conditioning as a chance to make some real money.

"Mebbe so, but they will have to step a lot faster than they have in the past if they are going to keep pace with men trained in the refrigeration schools."

That word "schools" should have been singular, instead of plural.

### Distinctive Methods

I was thinking of the refrigeration industry as a school of business training, because the activities of this industry have been characterized by certain principles, methods, and plans. It was my intention to indicate that refrigeration manufacturers, distributors, and dealers have done a better job of training salesmen than other lines of business such as plumbing and heating.

I was rather puzzled for a moment, therefore, on reading the letter which came with the clipping. It says:

"I have just read the attached comment in the Electric Refrigeration News and thought you might be in a position to advise me of a good refrigeration school in New York City.

"Your courtesy will be greatly appreciated."

### The 'University' of Servel

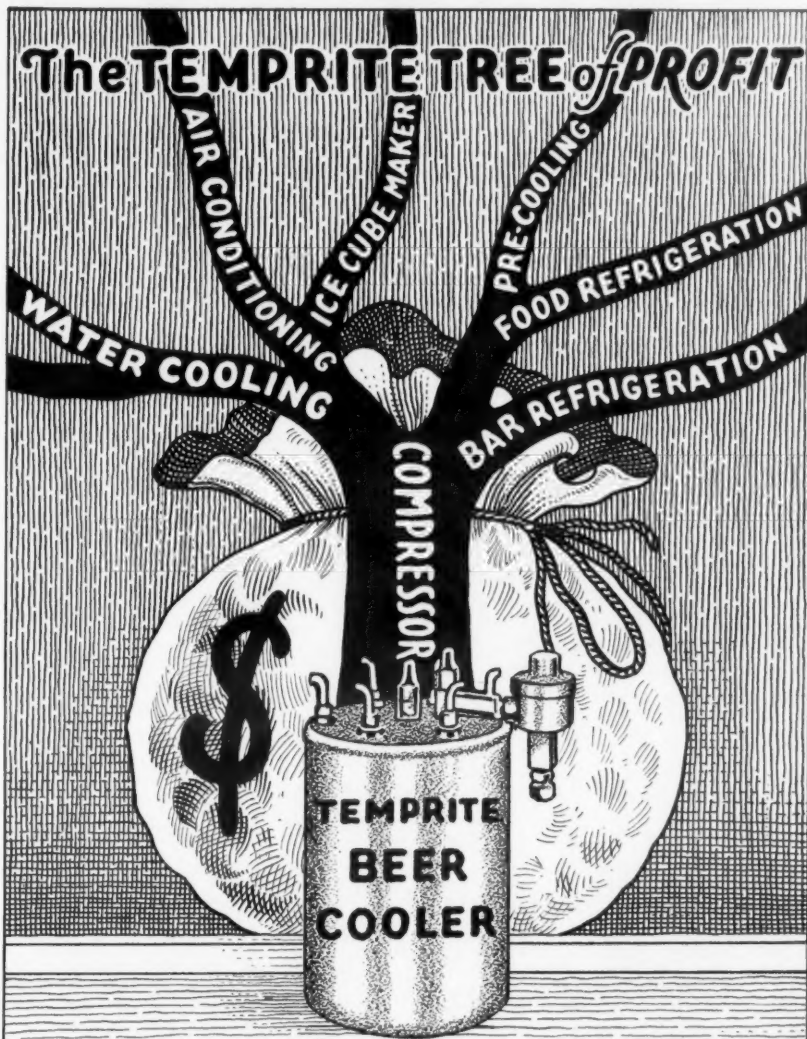
The letter is neatly typed on plain white paper (Acceptance Bond) and carries the following address: "51 East 42nd St., 18th Floor, New York, N. Y."

To the writer of this letter (whose name I will withhold from publication) my answer is:

"From the address given, I assume that you are an employee of Servel, Inc. If so, you are in a good refrigeration 'school' right now. I would suggest that you try to arrange your course of study so as to secure instruction from some of the eminent 'professors' of salesmanship connected with your institution.

"With your permission, I will be very glad to inform the president of your 'college' regarding your ambition. He will be impressed, I feel sure, by one obvious bit of evidence of your sincere interest, namely, that you read the News.

"Please take warning, however, that you may be reprimanded for cutting a clipping from an office copy. I have checked up and find that you are not a subscriber."



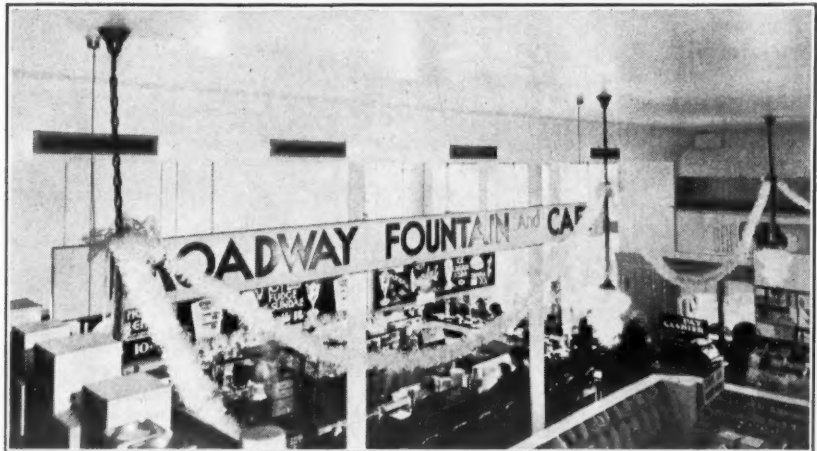
When an order for a Temprite is secured, additional profitable business automatically follows.

### TEMPRITE PRODUCTS CORPORATION

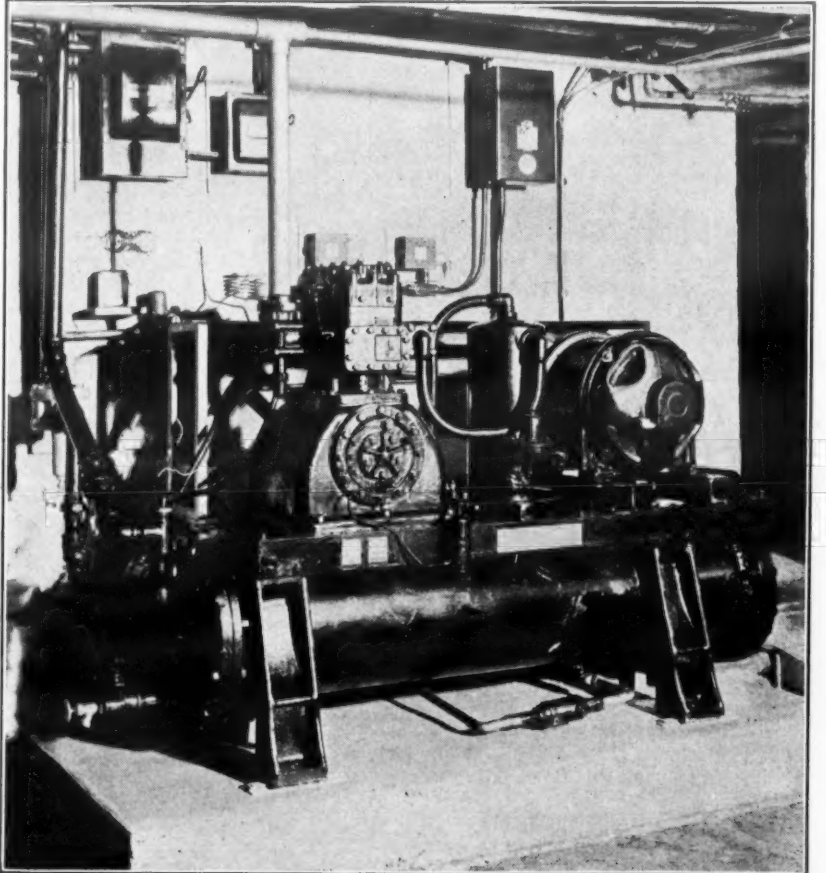
1349 EAST MILWAUKEE AVE. DETROIT, MICHIGAN

ORIGINATORS OF INSTANTANEOUS LIQUID COOLING DEVICES

### Sightly Duct System Devised for Salt Lake City Drug Store Job



E. N. Dean, air-conditioning engineer of Flint Distributing Corp., Salt Lake City, Utah, worked out the air-distribution scheme shown above, for the Broadway Drug Store. A duct runs alongside a beam (in the middle of the ceiling) and has five outlets on each side. The Uniflow grilles are long and flat so that the false beam, which hides the duct and branches, is only four inches lower than the original beam.



This 20-hp. Kelvinator compressor furnishes 26 tons of refrigeration for the Broadway Drug Store air-conditioning job. See "Comment" above.

### Learn the Advantages of ARCO COPPER for every Refrigeration use

THE many advantages of Arco Copper Pipe and Fittings make them ideal for every refrigeration use. Arco Copper Pipe is highly corrosion resisting. It lasts longer — costs less. Arco Full Flow Fittings, like the pipe they join, are pure wrought copper with all the advantages of the pipe. Their coefficients of heating and cooling, contraction and expansion are identical with the pipe. They are non-porous, safe with any refrigerant. They provide a smooth, full flow without friction or bulky connections to gather sediment.

Replacements are easy. The copper to copper sweat connection is quickly made between pipe and fitting. It holds under tremendous pressure and strain. And it is just as quickly disassembled when necessary. Cut operating costs by cutting pipe and fitting costs with Arco Wrought Copper. The line is complete from 1/4" to 4" inclusive. Write for the details.

Arco Pipe and Fittings Division

AMERICAN RADIATOR COMPANY

Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION  
40 West 40th Street, New York, N. Y.

# ARCO

Full Flow

WROUGHT COPPER FITTINGS  
AND WROUGHT COPPER PIPE

COPPER TO COPPER MAKES THE FOOLPROOF JOINT

The new 1-piece wrought tee with reduction on the run and on the branch.



# 316 SYSTEMS WERE INSTALLED IN CHICAGO DURING 1935

## Chief Rise Shown in Smaller Business Classifications

CHICAGO—This city, largest user of air-conditioning equipment in the country, has just completed the best year in its history in this respect. Passing all previous records, 317 installations were made here during 1935, to bring the city's total to 934, with a power load of 48,942 hp.

Most heartening factors in Chicago's air-conditioning progress during 1935 were two: (1) the evidence that air-conditioning is becoming a year-around business, since 20 installations were made during the last quarter of the year, and (2) the striking rise in the number of installations in the smaller business classifications.

### Small Businesses Are Buyers

Beauty shops, candy stores, drug stores, clothing stores, shoe stores, and undertaking establishments—pointed to for years as a fertile field for air conditioning, this year came into actuality as customers. As a result, installations in many of these fields doubled the total for all previous years.

In the beauty shop field, for example, seven installations last year were two more than the total registered in all years before 1935, to bring the city's total to 12. Doctors' and dentists' offices, where only four installations had previously been made, last year contributed 11, for a total of 15.

### Drug Installations Double

Drug company installations more than doubled during the year. At the start of 1935 there were seven such applications in the city; 14 more were added before the year closed. Candy stores and clothing shops made notable gains in air conditioning usage. Eight candy and 16 clothing shops were conditioned during the year, equaling previous years' totals in the first instance, and passing them by four in the second case.

Shoe stores, eight of them, put systems into operation during the year, whereas only seven had been installed previous to 1935. Nine unclassified retail centers were also conditioned, and two studios.

## Summary of Air-Conditioning Installations in Chicago through Dec. 31, 1935

	Prior 1933		1933		1934		1935		Total	
	No.	Hp.	No.	Hp.	No.	Hp.	No.	Hp.	No.	Hp.
Banks	4	1006	1	200	3	46½	..	..	8	1252½
Brokers & Exchanges	4	694½	2	26½	3	52	..	..	9	773
Beauty Shops	1	4½	..	..	4	63½	7	45½	12	113
Churches	1	90	1	1	1	65	1	7	4	167
Civic Buildings	..	..	1	116½	..	..	..	..	1	116½
Clubs	3	357	1	2	..	..	..	..	4	359
Dance Halls	4	465	..	..	..	..	..	..	4	465
Doctors & Dentists	..	..	2	1½	2	11	7½	15	11½	11½
Drug Companies	2	56	..	..	5	104½	14	134½	21	294½
Hospitals	2	35	..	..	5	8½	7	49½	14	91½
Hotels	13	3187½	3	94½	6	124	2	148	24	3554
Industrial	..	..	..	..	..	..	1	1½	19	304½
Bakery	18	308	..	..	..	..	..	..	29	3733½
Candy	17	2471	3	648	4	381	5	233½	24	2245½
Printing	13	1800½	1	201½	5	98½	5	145	24	2245½
Miscellaneous	6	609	3	179	10	353	9	119½	28	1260½
Gen. Offices & Bldg.	18	4493½	9	265	25	1558½	31	698½	83	7015½
Private Offices	22	68½	38	62½	50	136	61	76½	171	343½
Residences	10	40½	10	15	25	44	24	26½	69	125½
Restaurants	41	1566	22	547½	29	496	51	1098½	143	3707½
Stores	..	..	..	..	..	..	..	..	..	..
Candy	1	4	4	13½	3	5	8	13½	16	36
Clothing, Dept.	3	317	2	6½	7	1077½	16	449½	28	1850½
Fur	2	2½	..	..	3	19	3	13½	8	35
Shoes	2	34½	1	10	4	29	8	55½	15	129
Food	7	355½	..	..	..	..	..	..	7	355½
Miscellaneous	2	215	3	448	2	167	9	312	16	1142
Studios	1	346	1	9	1	12	2	52½	5	419½
Undertakers	3	50	2	10	5	42½	11	109	21	211½
Theaters	55	14013½	14	702½	36	2418	31	1665	136	18799½
<b>Total</b>	<b>255</b>	<b>32613½</b>	<b>124</b>	<b>3564</b>	<b>238</b>	<b>7304½</b>	<b>317</b>	<b>5461</b>	<b>934</b>	<b>48942</b>

Undertaking establishments installing air-conditioning equipment during the year numbered 11, one more than the total which had been conditioned in all the years before 1935.

### Hospital Market Improves

A potentially important field to show marked improvement during the year was hospitals. Here, seven installations totaling approximately 50 hp. were made, equaling in number the total made in all previous years. Many hospitals are just beginning to climb back out of the depression, and indications are that further increases in air conditioning will follow improved financial conditions.

A rather surprising record of revival was shown last year by two old and established markets for conditioning equipment: restaurants and theaters. In the first field, 51 installations were made, almost double the number

reported in 1934. In the second, 31 installations were recorded. Number of air-conditioned theaters in Chicago now is 136.

Both general and private offices increased their use of air conditioning during the year, 31 general and 61 private office installations being reported, compared with 25 general and 50 private offices during 1934.

Residential conditioning, a field comparatively uncultivated in Chicago as yet, held up well during the year. Twenty-four installations in homes throughout the city were reported, compared with 25 during 1934. Most of these were of the room-cooler type, the power load totaling 26½ hp. It is to be expected, however, that as general business conditions improve, more and more homeowners will avail themselves of the comforts and health benefits which air conditioning has to offer.

## Complete List of Business Establishments, Offices and Homes in Chicago Where Conditioners Have Been Installed

Name and Address	Equipment and Installed by	Tonnage	Refrig. Hp.
<b>Banks (8)</b>			
*American Nat'l Bank, La Salle (Foreman Bldg.)	Kroeschell	120	200
Chicago Title & Trust, 69 W. Washington St.	Carrier	300	476
Continental Ill. Bk. & Tr., (2nd Fl.—Levell)	Frigidaire	2	2
Continental Ill. Bk. & Tr., (4th Fl.—Waldeck)	Frigidaire	1	1½
Continental Ill. Bk. & Tr., (4th Fl.—Priv. Office)	Peerless	5	8
Continental Ill. Bk. & Tr., Director's Room	Mehring & Hanson	8	16½
Continental Ill. Bk. & Tr., Two sub-basements	Hanley-Decalor	150	20
Federal Reserve Bank, La Salle & Monroe	Wittenmeier	55	100
*First Trust & Sav. Bank, Safe Deposit Vaults	Carrier	15	18
*Merchandise Bank & Trust, 222 N. Bank Drive	Gen. Electric	7½	7½
Northern Trust Co., La Salle & Monroe	Carrier	250	403
		913½	1,252½

### Brokers & Exchanges (9)

*Bartlett Frazier (Ed. Rd.), 111 W. Jackson St.	Kroeschell	10	11½
*Bartlett Frazier (3rd Fl.), 111 W. Jackson St.	General Electric	20	23
Chicago Board of Trade, La Salle & Jackson	Wittenmeier	400	550
Chicago Stock Exchange, Monroe & La Salle	Amero. Carbonic	65	138
*E. A. Pierce & Co., 164 N. La Salle St.	Frigidaire	13½	15
*Rosenbaum Bros., 141 W. Jackson Blvd.	E. Vernon Hill	10	11
*Shearson Hamill & Co., 208 S. La Salle St.	Carrier	15	18
Stein Brenner & Co., 215 S. La Salle St.	Ilg	1	1½
Uhlman Grain Co., Board of Trade	Frigidaire	1	5
		535½	773

### Beauty Shops (12)

*Charming Beauty Shop, 4931 Sheridan Road	General Electric	5	5½
*Charming Beauty Shop, 4005 Lawrence Ave.	General Electric	5	5½
*Claire Beauty Shop, 5016 W. Madison St.	Bryant-Gillespie	7	1
*Clyde's Beauty Shop, 3951 W. Lawrence Ave.	York	5	5½
Edgewater Beach Hotel, 5349 Sheridan Road	Copeland	4½	4½
*Estelle Beauty Shop, 2746 N. Clark St.	Kelvinator	7½	8
*Ferrell Beauty Shop, 1442 Howard St.	Reliance Robinson	3	3
*Hilda Beauty Shop, Drake Hotel	X-L Refrig. Co.	7	8
*Jacqueline Cochran's, 700 N. Michigan Ave.	Kelvinator	15	17
*Marshall Field & Co., 119 N. State St.	Carbondale-Trane	25	45
*Ruth Bailey Beauty Shop, 5448 N. Clark St.	Ilg	5	5½
*Selans Beauty Culture, 1547 W. 63rd St.	Apex Sheet Metal	0	4
		89	113

### Churches (4)

Methodist Episcopal, Clark & Washington	Wittenmeier	65	90
*Our Lady of Grace, 2456 N. Ridgeway	General Electric	60	65
*Ravenswood Baptist, 4450 N. Seeley Ave.	Home-Made	0	5
*St. Philip Neri, 2126 E. 72nd St.	Bloom	0	7
		125	167

### Civic Buildings (1)

*Adler Planetarium, Grant Park	Carrier	50	116½
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### Clubs (4)

Chicago Club, Michigan and Van Buren	Wittenmeier	50	105
Illinois Athletic Club, 112 S. Michigan Ave.	L. A. Prentice Co.	25	30
Medinah Athletic Club, 505 N. Michigan Ave.	Kroeschell	125	222
*University Club (small lounge) Michigan & Monroe	Carrier	2	2
		202	359

### Dance Halls (4)

Aragon Ballroom, 1100 Lawrence Ave.	Wittenmeier-E. V. Hill	225	300
Merry Gardens, 3136 Sheffield Ave.	U.S. Air Conditioning	0	10
Plaza School of Dancing, 1210 N. Clark St.	U.S. Air Conditioning	0	5
Trionon Ballroom, 6205 Cottage Grove Ave.	Wittenmeier	100	150
		325	465

### Doctors & Dentists (15)

*Barnard, H. E., 1305 E. 63rd St.	Westing-Kroeschell	1½	1½
*Dyer, Lewis A., 1553 W. Madison St.	Chrysler-Airtemp	¾	¾
*Effenbaum, Arthur, 3460 Lawrence Ave.	Ilg-Advance Heating	1	1½
*Hansen, Harold O., 25 E. Washington St.	Frigidaire	¾	1
*Hansen, Harold O., 25 E. Washington St.	General Electric	1½	1½
*Irish, E. L., 5959 W. Division St.	General Electric	1½	1½
*Lager, Hugo O., 1107 Berwyn Ave.	General Electric	1½	1½
*Lazear, Davies, 29 E. Madison St.	Ilg. Gen. Electric	1½	1½
*Lewin, Phil., 307 S. Dearborn St.	General Electric	1½	1½
*Mayday, Theo. H., 3000 N. Cicero Ave.	G.E.-Walter Kemp	1	1
*Ryall, J. D., 2912 Milwaukee Ave.	Ilg	1½	1½
*Schwartz, Fred F., 25 E. Washington St.	Frigid-Chutkow	1½	1½
*Strilky, M. D., 4403 Sheridan Road	York	1	1
*Tumpeier, I. H., 310 S. Michigan Ave.	Thermal Units	1½	1½
*White, George L., 1951 Irving Pk. Blvd.	Westing-Kroeschell	1½	1½
		10½	11½

### Drug Companies (21)

*Adler Drug Co., 1620 E. 53rd St.	Wendt & Crone	5	5
*Cappella Drug Store, 120 S. Wabash Ave.	Frigid-Sundberg	¾	¾
*Hartman Drug Store, Wabash & Van Buren	Chrysler-Airtemp	7½	9½
*Liggett's Drug Store, 7 W. Madison St.	Wendt & Crone	15	15
*Liggett's Drug Store, 33 N. La Salle St.	Wendt & Crone	50	72½
*Liggett's Drug Store, 1960 E. 71st St.	Ilg-Wendt & Crone	10	10½
*Service Drug Co., 1201 N. Dearborn St.	General Electric	7½	8
*Stineway Drug Co., 6301 S. Kimbark Ave.	General Electric	10	10½
*Stineway Drug Co., 3965 Irving Park Blvd.	Frigidaire	7	7½
*Stineway Drug Co., 707 N. Michigan Ave.	Chrysler-Airtemp	3	3½
*Thomas Hasbrouck, 5600 W. 63rd St.	Assembled	7½	7½
*Walgreen Drug Store, 6257 S. Woodlawn Ave.	Drying Systems	16	28
*Walgreen Drug Store, 41 S. State St.	Drying Systems	16	28
*Walgreen Drug Store, 111 W. Washington St.	Carrier	15	17
*Walgreen Drug Store, 7059 Jeffery Ave.	Carrier	15	17
*Walgreen Drug Store, 1535 Hyde Park Blvd.	Frigidaire	5	4½
*Walgreen Drug Store, 1069 Bryn Mawr Ave.	Advance Heating	15	18
*Walgreen Drug Store, 750 North Michigan Ave.	Carrier	7½	9
*Walgreen Drug Store, State & Jackson Blvd.	Carrier	15	17
*Walgreen Drug Store, Michigan & Jackson	Carrier	15	17
*Windermere Drug Store, 1642 E. 56th St.	Wendt & Crone	10	10
		294½	294½

### Hospitals (14)

*Augustana Hospital, 409 W. Garfield Blvd.	York	1	1
*Billings (Experimental), 950 E. 59th St.	Kroeschell	1½	1½
*Edgewater (2nd Hayfever Rooms) 5700 N. Ashland	General Electric	2	2
*Henrotin (Patient's Room), 939 N. La Salle St.	Kroeschell	1½	1½
*Jefferson Pk. (Operating Room), 1410 W. Monroe	E. Vernon Hill	3	3½
*Michael Reese, 29th and Ellis	Wittenmeier	25	30
*Michael Reese, 29th and Ellis	Kilander	7½	8½
*Passavant Hospital, 303 E. Superior St.	Westing-Hyland	1½	1½
*Passavant Hospital (Oxygen Rm.), 303 E. Superior	Wittenmeier	2	3
*Passavant Hospital, 303 E. Superior St.	G.E.-Phillips Getschow	20	25
*St. Lukes Hospital, 1439 S. Michigan Ave.	General Electric	3	3
*St. Lukes Hospital, 1439 S. Michigan Ave.	G.E.-Doherty	10	11
*St. Lukes Hospital, 1439 S. Michigan Ave.	General Electric	2	2
*Wesley Memorial, 2449 S. Dearborn St.	York-Sampson	¾	¾
		77½	91½

### Hotels (24)

Atlantic Hotel, 316 S. Clark St.	Wittenmeier	55	95
*Atlantic Hotel (Tavern), 316 S. Clark St.	Wittenmeier	20	20
Belmont Hotel, 3136 Sheridan Road	Wittenmeier	25	60
*Brevort Hotel, 120 W. Madison St.	General Electric (See Restaurants)	100	245
Bismark Hotel, 171 W. Randolph St.	Wittenmeier	120	245
Blackstone Hotel, Michigan and 7th St.	Kroeschell	120	225
Congress Hotel, Congress and Michigan	Kroeschell	130	336
Congress Hotel (Urban Rm.), Congress & Mich.	Wittenmeier	60	75

(Continued on Page 16, Column 2)

\*Installations sold in 1933.  
\*Installations sold in 1934.  
\*Installations sold in 1935.



**ME**  
EST. 1866  
**REFRIGERATION PRODUCTS**

**MERCHANT & EVANS CO.**  
Executive Offices  
Philadelphia, Pa.  
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64 pages—presenting complete lines of commercial compressors from 1/6 to 15 H.P. as well as a large selection of light domestic, bare and special water cooling compressors for assemblers and service replacement. Write for your copy now.

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Plant: Lancaster, Pa. **PHILADELPHIA** Established 1866



## Building Design Problem Overcome in Library Air-Conditioning Installation

ST. PAUL.—Serving the entire building, as well as the reading room and staff rooms, a year 'round air-conditioning system has been installed in the James J. Hill reference library here. The system has been in operation since mid-summer.

Installation was made under the supervision of Ford J. Cumming, president of Beecher-Cumming, Inc., Minneapolis, assisted by S. L. Houston. The work was done without interfering with operation of the library, and without necessitating any architectural changes in the building.

Interior of the library is rather unusual, and presented several air-conditioning problems. The reading room, 150 feet long, 64 feet wide, and 51 feet high, has for its ceiling a large skylight—which, while adding beauty to the room, added also to the problem of air conditioning.

Book stacks are along side walls on the main floor. The second gallery has two-story book stacks on the side walls, and the third story has a one-story stack extending around sides and ends. One end of the building is divided into 12 private study rooms, each of which had to be conditioned individually.

Important, in the conditioning of libraries, record rooms, or other spaces in which books and records are kept, is the prevention of damage to these objects by sulphur dioxide, when this is used as the refrigerant.

In this installation, filtered, washed, and tempered outside air is introduced to the main library room both summer and winter. The washer includes treatment, with an alkaline solution, for the adsorption of sulphur dioxide, thus preventing damage to books and records.

Summer cooling is effected by recirculating the air from the main library over coils through which is circulated artesian well water at a temperature of 52° F., from a well 220 feet deep and 10 inches in diameter.

Temperatures, in the summer, are maintained at 80° F. dry bulb, with 50 per cent relative humidity, when outside temperatures are 95° F. dry bulb, and 74° F. wet bulb. Winter temperatures are kept at 72° F. dry bulb, with 40 per cent relative humidity.

Outdoor air treating unit, located in the basement, includes automatic oil filters, preheaters, cooling coils, washer, reheaters, and a 5,100 c.f.m. fan. For summer operation, a limited amount of outdoor air is brought into the system, where it is first filtered, then precooled.

Next the air goes through the alkaline solution spray in the washer, then through the reheat coils, and finally to the three-story main reference room through two grilles located on the floor near the front of the room.

Two separate cooling, dehumidifying, and recirculating units, placed in the attic space directly over the main library room, carry the cooling load. Larger of these units recirculates and treats the air in the main library room, while the smaller handles the 12 study rooms, librarian's office, and four catalog and work rooms.

Air from the main library is picked up through a series of ducts and

grilles in the three balconies ranging along both sides of the room, which are, in turn, connected to the cooling units.

Each unit consists of an automatic oil filter, cooling and dehumidifying coils, and a fan.

Treated air from the larger unit is delivered to the main room through high velocity grilles, space on the supply ducts which run along each side of the room at the third-floor level. A splitter damper controls the amount of air to each grille.

Air from the smaller unit is discharged into a duct running along the attic space horizontally to the rear of the building, where it is split up and dropped vertically to the back of the 12 study rooms. High velocity grilles carry the air into the rooms, from which it is exhausted to the main library room through door louvers.

A second duct from the small unit leads to the librarian's office and workrooms, discharging air through high velocity grilles and returning it to the main room through door louvers.

Intake side of the smaller unit is connected through the main series of ducts and grilles to the large library room, permitting complete recirculation of all air in the library.

Humidity is controlled through the outside air unit in the basement. A humidistat located in the main library room controls a modulating motor, operating a face and by-pass damper in the preheating coil. A duct thermostat, on the room side of the reheaters, maintains a minimum temperature of 80° F. the year around, by controlling a face and by-pass damper on the reheating coils.

A second duct thermostat, between the preheater and the washer, automatically shuts off the fan and fresh air intake, in the event the pre-heater coil fails.

The two attic units are controlled by a duct thermostat on the intake side of the recirculating duct, maintaining a minimum temperature and humidity by a modulating motor which operates by-pass dampers.

The deep well, which furnishes water for cooling, provides 300 g.p.m. of water. Its turbine-type pump, driven by a 10-hp. motor, has a capacity of 100 g.p.m. against a head of 220 feet. The motor is hand-controlled. Controlling the pump is a duct thermostat, set to cut in at 81° F. and out at 78° F.

The pump has no valves, the system being designed so that when the pump stops, all water in the system drains back to the well. Water is carried to the cooling coils through anti-sweat covered copper piping.

In summer operation, the reheat coil is supplied, when necessary, with hot water from a stoker-fired boiler, which also supplies domestic water service to the building. During winter use, the coil is supplied with steam from the main heating plant boiler.

Installation of the air-conditioning system permitted the removal of eight radiators, formerly located in the center of the main library room, increasing floor space as well as improving appearances of the room.

## Tea Quality Improved By Air Conditioning

WASHINGTON, D. C.—A potential new field for air conditioning in improving the quality of tea was mentioned in a recent report by Consul R. L. Buell, Colombo, Ceylon, to the Department of Commerce.

Pointing out that the major influences on tea are temperature and humidity, Consul Buell said that tea grown at an altitude of 4,000 feet and processed at an altitude of 6,000 feet has a much finer flavor than if manufactured at the altitude where grown. Likewise, he said, tea that has been made on a damp rainy day has a very different quality than that manufactured on a dry, sunny day.

Mr. Buell says he has the support of many of the leading Colombo tea interests in the opinion that the secret lies in the introduction of modern, scientific air conditioning in the rooms where withering, rolling, and fermenting takes place.

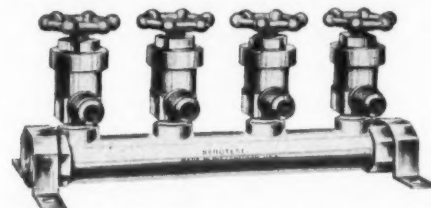
Better quality and uniformity are the results he thinks would be attainable with the elimination of variable climatic conditions.

## KEROTEST ACCESSORIES Every REFRIGERATION ENGINEER SHOULD KNOW

Just a few of the many accessories pioneered and perfected by Kerotest to aid you in successfully solving many modern refrigeration problems and add to the efficiency of any installation you contemplate.



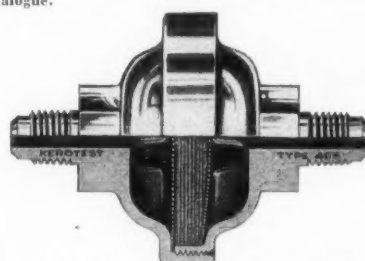
Kerotest Liquid Indicator Type 54 is used extensively on commercial lines carrying liquid refrigerant. If you see bubbles through the heavy annealed sight glass, a shortage of refrigerant is revealed . . . a valuable aid to service men everywhere. See page 27 of the Kerotest Catalogue No. 7 for full details.



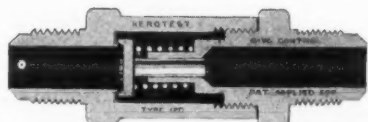
Made of Cadmium Plated Forged Steel, these Kerotest Heavy Duty Manifolds are widely preferred for large commercial refrigeration and air conditioning systems. Fitted with Kerotest Diaphragm Packless Valves with handwheels, they earn their cost many times over by positively preventing large leakage losses of expensive refrigerant. Fully described on pages 22 and 23 of the Kerotest Catalogue.



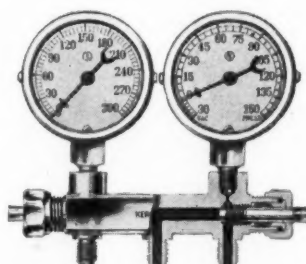
Kerotest Refrigerant Charging Stands incorporate many unique time and economy features . . . enable you to charge units direct in the service shop or charge small drums for convenient use on any individual job . . . eliminate under-charging or overcharging . . . saves all loss of refrigerant . . . saves time—can be set up in 5 minutes . . . compound gauges always indicate condition of pressure and vacuum under which the charge is made. See page 10 of your Kerotest Catalogue for full details.



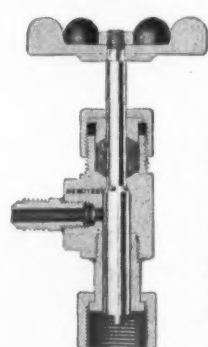
The inexpensive Kerotest Household Size Filter, Type 406—one of a complete line of Filters and Dryers that make complete filtration possible and complete removal of foreign matter and "oil carbon". Extraordinary capacity is an outstanding feature. Check the specifications on page 30 of the Kerotest Catalogue.



The renowned Kerotest CW Control prevents the flow of gases in the suction line from one coil to another on multiple installations . . . eliminates condensation of warm gas in colder coils . . . cuts running time of compressor . . . makes positive temperature control possible . . . pays for itself in a short time. See page 33 of Kerotest Catalogue.



The new Compact Kerotest Combination Testing Outfit is an indispensable aid to every service man . . . used for purging air or gas from high side . . . charging oil in low side and testing for leaks . . . setting low side controls, charging high or low side, setting expansion valves, purging gas from gauge lines, etc. See page 24 of Kerotest Catalogue for complete data and diagrams.



Kerotest Refrigeration Charging and Purging Valve Type 433 is ideal for hermetically sealed units . . . designed with union or swivel type nut at bottom so valve can be attached without turning the valve proper—very advantageous for limited space . . . also available with various nut and nipple connections for different types of electric refrigerators.

These accessories and many more are fully described in the Kerotest Catalogue No. 7—the most thoroughly used handbook of information in the refrigeration world. Do you have your copy?

**KEROTEST MANUFACTURING COMPANY**  
PITTSBURGH, PENNSYLVANIA



### Jobbers in the United States

Albany, N. Y. . . . .Hoy & Co.  
Atlanta, Ga. . . . .J. M. Tull Metal & Supply Co., Inc.  
Baltimore, Md. . . . .Clendenin Bros., Inc.  
Baltimore, Md. . . . .Melchior, Armstrong, Dessau Co.  
Bangor, Maine . . . . .Utilities Distributors, Inc.  
Boston, Mass. . . . .A. E. Borden Co.  
Bridgeport, Conn. . . . .Parsons Bros.  
Brooklyn, N. Y. . . . .Coleman Electrical Supply Co., Inc.  
Buffalo, N. Y. . . . .Root, Neal & Co.  
Cambridge, Mass. . . . .Melchior, Armstrong, Dessau Co.  
Chicago, Ill. . . . .H. W. Blythe Co.  
Chicago, Ill. . . . .Max A. R. Matthews  
Chicago, Ill. . . . .Borg-Warner Service Parts Co.  
Chicago, Ill. . . . .The Merkel Bros. Co.  
Cincinnati, Ohio . . . . .Williams & Co., Inc.  
Cleveland, Ohio . . . . .Williams & Co., Inc.  
Columbus, Ohio . . . . .The Justus & Parker Co.  
Dallas, Texas . . . . .The Electromotive Co.  
Davenport, Iowa . . . . .Republic Electric Co.  
Denver, Colo. . . . .Auto Equipment Co.  
Des Moines, Iowa . . . . .C. L. Percival Co.

Detroit, Mich. . . . .J. M. Oberer, Inc.  
Farmwood, Miss. . . . .Enochs Sales Co.  
Fort Wayne, Ind. . . . .H. J. Schroeder Co.  
Greensboro, N. C. . . . .Home Appliance Service Co.  
Honolulu, T. H. . . . .The H. Davies & Co., Ltd.  
Houston, Texas . . . . .D. C. Lingo Co.  
Indianapolis, Ind. . . . .F. H. Langenkamp Co.  
Kansas City, Mo. . . . .Forslund Pump & Machinery Co.  
Los Angeles, Calif. . . . .Refrigeration Service, Inc.  
Long Beach, Calif. . . . .L. B. Marsh  
Macon, Ga. . . . .Lowe Electric Co.  
Memphis, Tenn. . . . .United Refrigerator Supply Co.  
Milwaukee, Wis. . . . .Chase Brass & Copper Co., Inc.  
Minneapolis, Minn. . . . .Chase Brass & Copper Co., Inc.  
Minneapolis, Minn. . . . .Refrigeration & Industrial Supply Co., Inc.  
Newark, N. J. . . . .McIntire, Connector Co.  
New Orleans, La. . . . .Enochs Sales Co.  
New York, N. Y. . . . .Melchior, Armstrong, Dessau Co., Inc.  
New York, N. Y. . . . .Paramount Electrical Supply Co.

New York, N. Y. . . . .Aetna Supply Co.  
Oklahoma City, Okla. . . . .Mideke Supply Co.  
Peoria, Ill. . . . .Isaac Walker Hardware Co.  
Philadelphia, Pa. . . . .Melchior, Armstrong, Dessau Co., Inc.  
Pittsburgh, Pa. . . . .Williams & Co., Inc.  
Portland, Oregon . . . . .Harrison Sales Co.  
Providence, R. I. . . . .Rhode Island Supply & Engineering Co.  
Rochester, N. Y. . . . .Ontario Metal Supply, Inc.  
Sacramento, Calif. . . . .J. N. Blair Co.  
St. Louis, Mo. . . . .The Spangler Co.  
San Francisco, Calif. . . . .California Refrigerator Co.  
San Francisco, Calif. . . . .Refrigerating & Power Specialties Co.  
San Juan, Puerto Rico . . . . .Refrigeration Supply Co.  
Seattle, Wash. . . . .Harrison Sales Co.  
Sioux City, Iowa . . . . .National Refrigeration Service  
Springfield, Mass. . . . .Home Utilities Service Supply  
Syracuse, N. Y. . . . .Syracuse Supply Co.  
Tulsa, Okla. . . . .Machine Tool & Supply Co.  
Waterloo, Iowa . . . . .Winterbottom Supply Co.  
Wilkes Barre, Pa. . . . .Radio Service Co.

### Jobbers in Foreign Countries

#### AUSTRALIA

Sydney . . . . .F. C. Lovelock, Ltd.

#### CANADA

Montreal and Toronto—Railway & Engineering Specialties, Ltd.

Vancouver—Fleck Brothers, Ltd.

### Direct Factory Representatives

Chicago, Ill. . . . .G. C. Taylor  
Dallas, Texas . . . . .C. E. Boren  
Dayton, Ohio . . . . .E. J. Kimm

Denver, Colo. . . . .R. L. Chambers  
Detroit, Mich. . . . .T. F. Wilson  
Los Angeles, Calif. . . . .Van D. Clothier  
New York, N. Y. . . . .K. M. Newcum

San Francisco, Calif. . . . .A. W. V. Johnson  
St. Louis, Mo. . . . .R. H. Spangler  
Omaha, Neb. . . . .Austin Jones

## McQuay Introduces Line of Comfort Coolers & Combination Coolers and Heaters

MINNEAPOLIS—McQuay, Inc., has just brought out a new line of comfort coolers and combination coolers and heaters for year-round air-conditioning purposes.

The comfort coolers, which are of the direct-expansion type and useable with all types of refrigerating machines using Freon, methyl chloride, sulphur dioxide, and other refrigerants, are available in four sizes, ranging from ¼ to 5-hp. compressor capacities.

All units are equipped for ceiling suspension, or may be placed on a shelf or other convenient support. The coolers are available in five models, using fan motors of from 1/30 to ¼ hp., and ranging in price from \$126 to \$258.

The coolers are designed particularly for installation in restaurants, barber shops, beauty parlors, fur shops, and other small industrial applications. The units may be moved easily, in case it is necessary to change from one location to another.

Exterior finish is in brown crinkle baked enamel, with neutral prime coat finish available if it is desired to paint the unit to match the surrounding color scheme.

Heat transfer coil is of finned copper tubing, with aluminum fins attached and hydrostatically tested at 1,000 lbs. pressure. All direct-expansion units have a special dryer on the suction line. An insulated drip pan is built into the bottom of the housing to collect the condensate, and a ¾-in. pipe connection is provided at the rear of the unit for drain purposes.

Dimensions range from 19½ by 15½ by 15½ in. for the smallest size unit, to 30 by 27 by 20, for the largest.

The combination coolers and heaters

use water or brine as the cooling medium. Where water of 55° F. or colder is available, no compressor is required. The units are so designed that steam or hot water may be connected to them, and used for heating purposes in the winter.

Seven models are available in this line, using fan motors of from 1/30 to ¼ hp., and ranging in size from 19½x15½x15½ in. to 36x33x20 in. Prices range from \$126, for the smallest size model, to \$436, for the largest size.

## Tenants Willing to Pay Much Higher Rent for Conditioned Space

SAN ANTONIO, Tex.—Although San Antonio's first air-conditioned office building, the Milan building, constructed in 1928, has been sold at public auction, Manager M. A. Snyder is supported by tenants in the assertion that air conditioning itself was an unqualified success.

In testimonials submitted to Mr. Snyder, occupants indicated a willingness to pay from 30 to 50 per cent more rental than usual for the comfort which air conditioning affords.

Comparison with other buildings of its caliber, the Milan building had a much higher occupancy rate during the depression. The air-conditioning system also afforded opportunity to rent the basement to a cafe, increasing revenue there about 50 per cent.

Mr. Snyder found that expenses usually arising from cleaning and painting and for ceiling fans and transoms were also eliminated.



## Maternity Section & Operating Rooms of Hospital Conditioned

LITTLE ROCK, Ark.—Installation of a York air-conditioning system of the central plant type played an important part in the program of modernization undertaken by the St. Vincent's Infirmary here recently.

Danger from concentration of gases used in anesthetics or from static electricity was one of the major problems involved in the installation, as well as a consideration of air distribution and proper filtration of air to assure removal of all dust and impurities.

### Two 10-Hp. York Units Used

The constant volume of fresh, filtered, and conditioned air sent to the surgical operating room and to the large maternity section of the hospital is supplied by two model 44 TSFW 10-hp. York Freon condensing units, located in the basement, which are connected with two model C-1,000 York air-conditioner units.

In the nursery rooms of the maternity section a slightly higher temperature is maintained by means of a small York model F-125-D4 floor-type air conditioner.

### Circulation of Fresh Air

The new equipment provides a constant circulation of fresh air, at a comfortable temperature, which prevents annoyance of patients from the transmission of anesthetics as well as odors from the kitchen, and maintains the necessary atmospheric "freshness" which is essential where there is sickness.

St. Vincent doctors have found that the system assures a clear vision, since moisture or "fog" no longer collects on glasses worn by operating surgeons, or their attendants.

Absence of moisture is also said to keep instruments in better condition, preventing them from rusting. With air conditioning, operating rooms where patients are thinly clad maintain an even, comfortable, readily controlled temperature and humidity.

## New Conditioning Firm Is Organized

NEW YORK CITY—To operate as a personal service organization in the air-conditioning contracting field, Buensod-Stacey Air Conditioning, Inc., with headquarters in the Lincoln building, was formed here recently.

Officers of the corporation are: A. C. Buensod, president; Alfred E. Stacey, Jr., vice president; M. S. Smith, treasurer; and H. W. Marshall, secretary.

Members of this organization, a number of whom were formerly connected with various divisions of Carrier Engineering Corp., have had many years of experience in the air-conditioning field.

Mr. Stacey was associated with Willis H. Carrier for over 25 years. Mr. Smith held the position of purchasing agent and production manager, and later treasurer, with Carrier Corp.

**McCORD**  
Refrigeration  
PRODUCTS

COMMERCIAL EVAPORATORS  
DOMESTIC EVAPORATORS  
CONDENSERS  
METFLEX ICE TRAYS  
SPIRAL FINNED TUBING  
AIR CONDITIONING SURFACE  
McCORD RADIATOR & MFG. CO.-DETROIT

## Where Air-Conditioning Systems Have Been Installed in Chicago

Name and Address	Equipment and Installed by	Tonnage	Refrig. Hp.
<b>Hotels (Continued from Page 14, Column 5)</b>			
*Del Prado Hotel, 5307 Hyde Park Blvd.	Bloom-Trane-Harbula	15	22
*Drake Hotel (Bar), Lake Shore Dr. & Michigan	Frigidaire	10	11 1/2
*Drake Hotel, Lake Shore Dr. & Michigan	Ilg	1 1/2	1 1/2
*Drake Hotel (Ballroom), Lake Shore Dr. & Mich.	Assembled	25	35
*Great Northern Hotel, 237 S. Dearborn St.	Wittenmeier	75	110
*Harding Hotel & Tavern, 19 S. Clark St.	U.S. Air Conditioning	0	17 1/2
*Knickerbocker Hotel, 166 E. Walton Place	Kroeschell	75	122
*La Salle Hotel, La Salle & Madison	Carbondale	50	100
*Palmer House, State & Monroe	Kroeschell	200	529
*Palmer House (Liquor Store), State and Monroe	Kroeschell	6	7 1/2
*Palmer House (Bar), State and Monroe	Phillips Getschow	30	38
*Seneca Hotel (Bar), 200 E. Chestnut St.	General Electric	6	8 1/2
*Sheridan Plaza, 4605 Sheridan Road	Wittenmeier	150	360
*Sherman, Clark and Randolph	Ice	0	55
*Sherman, Clark and Randolph	Wittenmeier	105	125
*Southmoor Hotel, 6646 Stony Island Ave.	Wittenmeier	50	110
*St. Clair Hotel (Bar), Ohio and St. Clair	Thermal Units	3	3 1/2
*Stevens, 710 S. Michigan Ave.	Carbondale	500	820
		1,830 1/2	3,554

### Industrial Applications

<b>Bakery (19)</b>			
A. & P. Tea Co. (Dough Room), 4248 W. 47th St.	Clarage Fan Co.	5	12 1/2
A. & P. Tea Co. (Proof Box), 2622 N. Crawford	Carrier	0	2
A. & P. Tea Co. (Proof Box), 5700 Grove Ave.	Carrier	0	2
Bremner Bros., 901 Forquer St.	Claridge	0	7 1/2
Burny Bros., 2747 W. Van Buren St.	Home-Made	5	13
Central Wholesale Grocers, 301 S. California Ave.	Drying Systems	6	10 1/2
Continental Bakery, 1307 Diversey Ave.	Carrier	12	20
Continental Bakery, 4146 S. Wabash Ave.	Carrier	12	20
*Deer Park Baking Co., 1728 N. Kilpatrick Ave.	Reliance	1	1 1/2
Gordon Baking Co. (Proof & Dough Rm.)	Carrier	15	27
5324 Federal St.			
Jersey Farm Baking Co. of Illinois,	York	12	20
2101 Canal St.	Carrier	8	13
John R. Thompson (Ferment Rm.) 350 N. Clark St.	Drying Systems	15	30
National Biscuit Co., 22 N. Morgan St.	Natkin Engr. Co.	12 1/2	35
Paul Schuler Biscuit Co., 25 N. Green St.	York	17	25
Salerno Megowen Biscuit Co., 4440 W. Division St.	York	20	20
Sawyer Biscuit Co., 1025 W. Harrison St.	Natkin-Viltter-	25	33
Schulze Baking Co., 18-34 E. Garfield Blvd.	Drying Systems	5	7 1/2
Schulze Baking Co., 1435 Webster Ave.	Drying Systems-Baker	4	5
Vienna Model Bakery (Dough) 1212 W. Congress			
		174 1/2	304 1/2

<b>Candy (29)</b>			
Bunte Candy Co., 3301 Franklin Blvd.	Carrier	62	90
*Boulevard Candy Co., 1925 S. Western Ave.	Reliance	10	11 1/2
*Currier Lee Warehouse, 127 W. Erie St.	Walker-Jamar	15	20
Curtiss Candy Co., 622 Diversey Parkway	Kroeschell	140	324
Curtiss Candy Co., 950 Briar Place	Wittenmeier	25	30
*Curtiss Candy Co., 750 Briar Place	Wittenmeier	75	180
*Curtiss Candy Co., 337 E. Illinois St.	Howe	20	25
Dutch Mill, 2222 Diversey Parkway	Viltter-Dry. Sys.	150	547
E. J. Brach & Sons, 4656 W. Kinzie St.	York	150	225
E. H. Edwards, 419 N. Franklin St.	York	45	80
*Flavour Candy Co., 314 W. Superior St.	York-Western. Camp.	3	3 1/2
*Mars, Inc., 2019 N. Oak Park Ave.	York-Bailey Blower	365	465
Martha Washington Candy, 3823 Broadway	York-Western. Camp.	10	20
Mrs. Snyder, 119 N. Wabash Ave.	Bruno-Kroeschell	17	25
*Mrs. Stevens Candy Co., 481 Milwaukee Ave.	Burge	20	30
*Nutrine Candy Co., 417 W. Erie St.	Bruno-Kroeschell	20	30
Overland Candy Co., 1732 W. Austin Ave.	Carrier	3	6
Paul F. Beich, 126 S. Green St.	Rebsamson & Almeroth	15	25
*Peanut Specialty Co., 400 W. Superior St.	York	85	150
Reed Candy Co., 1245 Fletcher St.	York	0	11
Shotwell Mfg. Co., 3501 Potomac Ave.	Bentz (Newark)	60	80
Thinsell Candies, 1407 W. Jackson Blvd.	York	35	45
*United Drug Co., 1416 W. 37th St.	York-Western. Camp.	7 1/2	8 1/2
Walgreen Co., 4720 St. Louis Ave.	B. Offen Co.	40	75
Walter H. Johnson, 341 W. Superior St.	Viltter	60	95
Walter O. Birk, 500 S. Desplaines Ave.	Home-Made	45	60
Warfield Chocolate Co., 536 W. 22nd St.	Frigidaire	3	3
Warfield Chocolate Co., 536 W. 22nd St.	Carrier	75	100
Warfield Chocolate Co., 536 W. 22nd St.	York-Rasmussen	60	75
Williamson Candy Co., 4701 Armitage Ave.	Howe-Steam Drive	160	220
Wm. Wrigley, Jr., Co., 3535 S. Ashland Ave.	Carrier	400	550
		2,250 1/2	3,738 1/2

<b>Printing (23)</b>			
A. B. Dick & Co., 720 W. Jackson Blvd.	Carrier	500	700
*A. B. Dick & Co. (Carb. P.), 3040 W. Lake St.	Carrier	1 1/2	1 1/2
Alco Gravure, 2436 W. 15th St.	Frigidaire	60	70
Avery Corp. (Press), 3462 Kimball Ave.	Carrier	0	40
Chicago Carton Co., 4433 Ogden Ave.	Carrier	0	12 1/2
Chicago Carton Co., 4200 So. Crawford Ave.	Carrier	25	35
Chicago Tribune (Paper Stor.), Tribune Tower	Carrier	0	45
Continental Can Co., 4633 W. Grand Ave.	Carrier	0	65
First Nat'l Bank (Press), 38 S. Dearborn St.	Carrier	0	3
Full Printing Co., 4601 Diversey Ave.	R. Gordon, Inc.	0	375
*Hennrichy (Press), 400 W. Jackson Blvd.	General Electric	40	45
*Manz Corp., 4043 N. Ravenswood Ave.	Kroeschell	3	3 1/2
*Menz Corp., 4043 N. Ravenswood Ave.	Carrier	100	175
Meyer Corp. (Decalcomania), Lake and Long	Bruno-Kroeschell	65	120
Miehle Printing Press & Mfg., 14th & Damen Ave.	Offen-Frick	35	145
Neo Gravure Co. of Chicago, 2242 Grove Ave.	Carrier	0	60
Peerless Lithographing Co., 4813 Diversey Ave.	Carrier	70	201 1/2
*R. E. Donnelly (3 Install.), 2101 Calumet Ave.	Carrier	40	55
*R. E. Donnelly, 2101 Calumet Ave.	Carrier	0	6
*Standard Process Corp., 734 Mather St.	Frigidaire	3	3 1/2
*Tablet & Ticket Co., 1015 W. Adams St.	York	25	27
Theo A. Schmidt Lithog. Co., 1050 Fullerton Ave.	Carrier	0	6
Tobey Rubovits Lithog. Co., 1501 W. Congress St.	Carrier	0	8
		970 1/2	2,245 1/2

<b>Miscellaneous (28)</b>			
A. & P. Tea Co. (Egg Candling), 445 W. 39th St.	Carrier	12	30
Bauer & Black (Adhes. Tape), 2500 S. Dearborn St.	Trane	15	15 1/2
Bell & Howell (Film Dry.), 1803 Larchmont Ave.	General Electric	7 1/2	10
Blue Valley Ctry. (Pkg. & Churn),			
1137 W. Jackson Blvd.	Carrier	15	44
*Chicago Rotoprint Co. (Film Dry.), 4601 Belmont	B. Offen & Co.	3	3 1/2
Cribb & Sexton (Enamel), 680 N. Sacramento	Westing-Kroeschell	1 1/2	2
Darling & Co. (Fertilizers), 4201 S. Ashland Ave.	York-Viltter	175	200
Darling & Co., 46th St.	York	25	35
*Fahart Instrument Co., 4740 N. Clark St.	Drying Systems	0	32 1/2
*Frederick Post Co. (Paper Coating), 3935 N. Hamlin	Carrier	10	11 1/2
*Griswold Walker Bateman (Fruit), 1524 S. Peoria	Kelvinator	40	44
*Hales & Hunter (Malt Mfg.), 4600 Cortland Ave.	Assembled	0	57 1/2
*Huyler's (Wineries), 919 W. Michigan Ave.	E. Vernon Hill	1	1
*Keuffel & Esser (Carbon Paper), 520 S. Dearborn	Kroeschell	3	3 1/2
*Lucien Lelong, 55 E. Washington St.	Fairbanks Morse	1 1/2	2
*Marquette Dairy, 5839 S. Talman Ave.	X-L Refrig. Co.	2	3 1/2
*Midwest Mushroom Co., 236 N. Clark St.	Frigidaire	1	1 1/2
*Mushroom Growers Assn., 18 S. Water Market	York	3	3
*National Tea Co. (Egg Candling), 1000 Crosby St.	York	91	120
*New York Central Lines, 435 N. Michigan Ave.	Various	250	300
*Northwestern Yeast Co., 1750 N. Ashland Ave.	General Electric	7	7 1/2
Oscar Heineman Silk Co. (Textile),			
Armitage & Fairfield	Carrier	0	295
*Railway Term. & Warehouse (Wine Cooling),			
444 W. Grand Ave.	Frigidaire	3	3 1/2
Stewart-Vander Co., 1828 Diversey Parkway	York	3	5 1/2
The Ketter Elliott Co., 3101 S. California Ave.	Carrier	5	5
*Transparent Containers, 1019 W. 35th St.	Viltter	15	20
*Universal Film Co. (Screen R.), 841 S. Wabash Ave.	Norge-Sampson	3	3 1/2
*Wolf Coal Saver Co. (Chemicals), 1332 W. Congress	Frick Assembled	5	5 1/2
		705 1/2	1,260 1/2

### General Offices & Buildings (83)

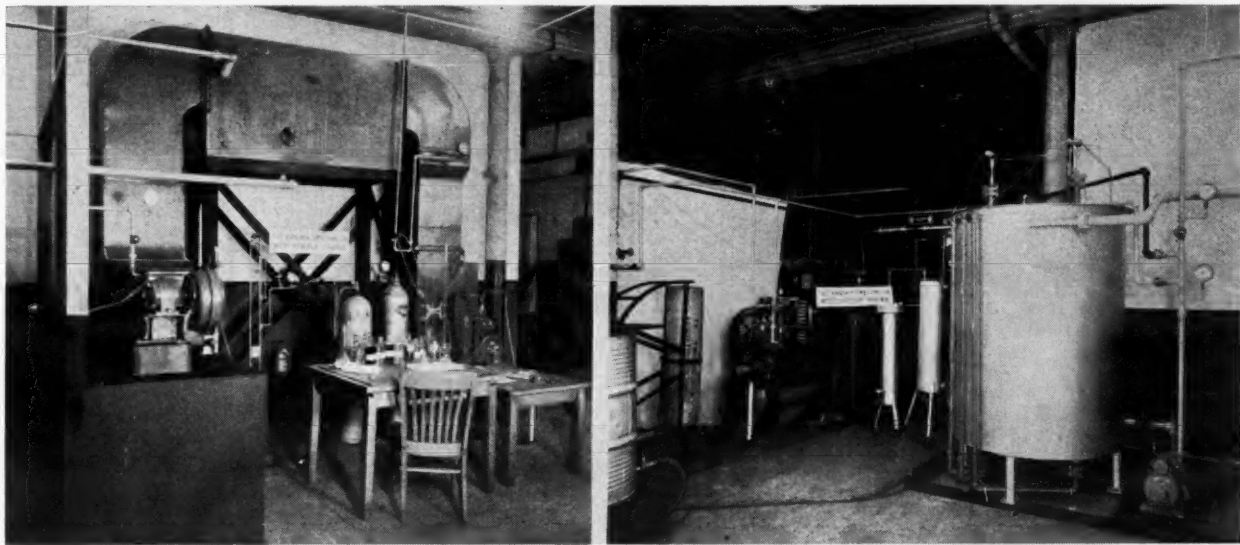
A. C. Allyn & Co., 100 W. Monroe St.	Kroeschell	38	73
*Acme Steel Co., 101 E. 134th St.	Carrier	10	12
*A. B. Dick & Co., 720 W. Jackson Blvd.	Carrier	50	69
*A. B. Dick & Co., 736 W. Jackson Blvd.	Carrier	160	240
Administration Bldg., 40 E. 13th St.	Bloom	3	3
*American Asphalt Paving Co., 43 E. Ohio St.	Wittenmeier	30	35
Armour & Co., U. S. Yards	Assembled	1,500	2,250
*Barco Mfg. Co., 1801 Winnemac Ave.	Frigidaire	6	6 1/2
*Barco Mfg. Co., 1801 Winnemac Ave.	Frigidaire	5	5
Bear Brand Hosiery, 538 S. Wells St.	Frigidaire	0	5
*Benefit Assoc. Ry. Emp., 901 Montrose Ave.	Kroeschell	80	90
*Bradner Smith & Co., 333 S. Desplaines Ave.	Fairbanks-Morse	10	10
Brinks Express Co., 571 W. Jackson Blvd.	Frigidaire	2	2
Burkhardtmeier Cooperage, 7244 S. Chicago Ave.	Ilg	2	2 1/2
*Burroughs Adding Machine, Wells & Washington	Kroeschell	35	60
*Callaghan & Co., 410 E. Ohio St.	G.E.-McDonald Trun.	7 1/2	9 1/2
*Chicago Airtemp Corp., 228 N. LaSalle St.	Chrysler	3	3
*Chicago Airtemp Corp., 228 N. LaSalle St.	Chrysler	2	2
*Chicago Cardboard Co., 666 W. Washington St.	Kroeschell	7	9
*Chicago Tribune Tower, 435 N. Michigan Ave.	Kroeschell	600	300
*Commonwealth Edison Co., 72 W. Adams St.	Carrier	220	220
Containers Corp., 111 W. Washington Blvd.	Carrier	30	35
*Coyne Electrical School, 500 S. Paulina St.	York	5	6 1/2
*Dwight Bros. Paper Co., 626 S. Clark St.	Carrier-Air Comfort	15	18 1/2
*Electromotive Corp., 100 W. Adams St.	Crone	3	3 1/2
*Equipment Corp. America, 1130 S. Washtenaw Ave.	Kelvinator	3	3 1/2
*Estate of Marshall Field, 100 W. Adams St.	G.E.-Kroeschell	8	9

Name and Address	Equipment and Installed by	Tonnage	Refrig. Hp.
<b>Offices, Private (171)</b>			
*Estate of Marshall Field, 100 W. Adams St.	Witten-Bloom	5	5
*Fahart Instrument Co., 4740 N. Clark St.	Drying Systems	5	6
*F. H. Bartlett Co., 33 W. Washington St.	E. Vernon Hill	10	12
*Field Building (Four Floors), LaSalle & Adams St.	Carrier	750	900
*Florsheim Shoe Co., 541 W. Adams St.	Carrier	45	54
*Frigidaire Sales Corp., 2031 Calumet Ave.	Frigidaire	10	10
*Goldblatt Bros., 3938 S. Winchester Ave.	Nat'l-Korectaire	10	13 1/2
*Hay Fever Assn., La Salle Hotel	Kelvinator	2	2
*Henry Valve Co., 1019 N. Spaulding Ave.	Reliance	5	5 1/2
*Hugo Dalmar & Co., 157-85 W. Jackson Blvd.	Frigidaire	5	5
*Ilg Ventilating Co., 2850 N. Crawford Ave.	Ilg	2	3
*Ilg Ventilating Co., 182 N. LaSalle St.	Ilg	2	3
*International Harvester Co., 2600 W. 31st St.	Crone	50	60
*International Register Co., 15 S. Throop St.	Frigidaire	5	5 1/2
*Joslyn Mfg. Co., 3700 S. Morgan St.	Carrier-Air Comfort	5	5 1/2
*Jos. M. Cudahy, 208 W. Washington St.	Westing-Kroeschell	7	7 1/2
*Kroeschell Engineering Co., 2306 N. Knox Ave.	Kroeschell	1 1/2	1 1/2
*Lanzit Corrugated Box Co., 2435 S. Rockwell St.	General Electric	15	17
*Lathrop Paulson, 2459 W. 48th St.	York-West & Campbell	5	6 1/2
*Libby McNeill & Libby, U. S. Yards	Self-Made	75	75
*Liquid Carbonic, 3100 S. State St.	Kroeschell	250	285
*Link Belt, 300 W. Pershing Rd.	Westg.-Kroeschell	10	11 1/2
*Marriott Coal Co., 2500 Fulton St.	Kroeschell	2	2
*Marshall Field & Co., Merchandise Mart	Amer. Carbonic	150	290
*Merchandise Mart Co., 222 N. Bank Dr.	General Electric	5	5
*Monroe-Debarb Bldg., Monroe & Dearborn Sts.	Ingersoll Rand	90	146
*Morton Bldg. (Tax Board), Morton Bldg.	Kroeschell	30	61 1/2
*Morton Bldg. (22nd Fl.), 208 W. Washington St.	Kroeschell	9	13
*Neo Gravure, 2242 Grove St.	Air Cond. & Coolg.	30	43 1/2
*Oppenheimer Casing Co., 1016 W. 36th St.	B. Offen Co.	10	13 1/2
*Phenix Dye Works, 1963 Southport Ave.	York-West & Crone	5	5 1/2
*Phenix Metal Cap Co., 2444 W. 16th St.	Carrier (Steam)	0	26
*Reinick, Ellis, Young, 520 N. Michigan	Carrier-Air Comfort	7 1/2	9
R. R. Donnelly & Co. (Reuben H. Donnelly Co.),			
2101 Calumet Ave.	Carrier	175	285
Servel Co., 549 W. Randolph St.	Servel	17 1/2	20 1/2
*Sampson Electric Co., 3201 S. Michigan Ave.	Norge-Sampson	13	13
*Silberman & Becker, 1117 W. 35th St.	B. Offen Co.	3	3
*Smith, H. P., 1130 W. 37th St.	York	2	2
*So. Shore Investment Co., 7459 S. Exchange Ave.	Carrier	2	2
*Swift & Co., U. S. Yards	Viltter	300	500
*Swift & Co., U. S. Yards	150	280	
*Tablet & Ticket Co., 1021 W. Adams St.	E. Vernon Hill	7 1/2	7 1/2
*Tablet & Ticket Co., 1021 W. Adams St.	E. Vernon Hill	6	7 1/2
*The Cronwell Paper Co., 4905 S. Whipple St.	Advance Heating	5	6
*Union Stock Yards & Trans. Stock Yards	York	12	13
*U. S. Brewing Co., 2519 Elston Ave.	Carrier-Air Comfort	25	5
*Westerlin & Campbell, 1113 Cornelia Ave.	York	6	8
*Western Felt Works, 4115 Ogden Ave.	Wittenmeier-Bloom	25	30
*Western Shade Cloth, 22nd & Jefferson Sts.	Frigidaire	20	23
*Wieland Dairy Co. Inc., 3638 N. Broadway	Viltter	40	40
*Wilson & Co., U. S. Yards	Carrier	5	5
*Wilding Picture Prod., 1325 Argyle St.	Norge-Sampson	17 1/2	20 1/2
*Wilson & McIlvain, 100 W. Adams St.	General Electric	8	8 1/2
*Wilson Steel & Wire, 4830 S. Western Ave.	Kelvinator	5	6
*Wilson Western Sport Goods, 2037 N. Powell Ave.	Carrier	0	2
*Wittenmeier Machinery, 850 N. Spaulding Ave.	Wittenmeier	5	5
		5,293 1/2	7,015 1/2

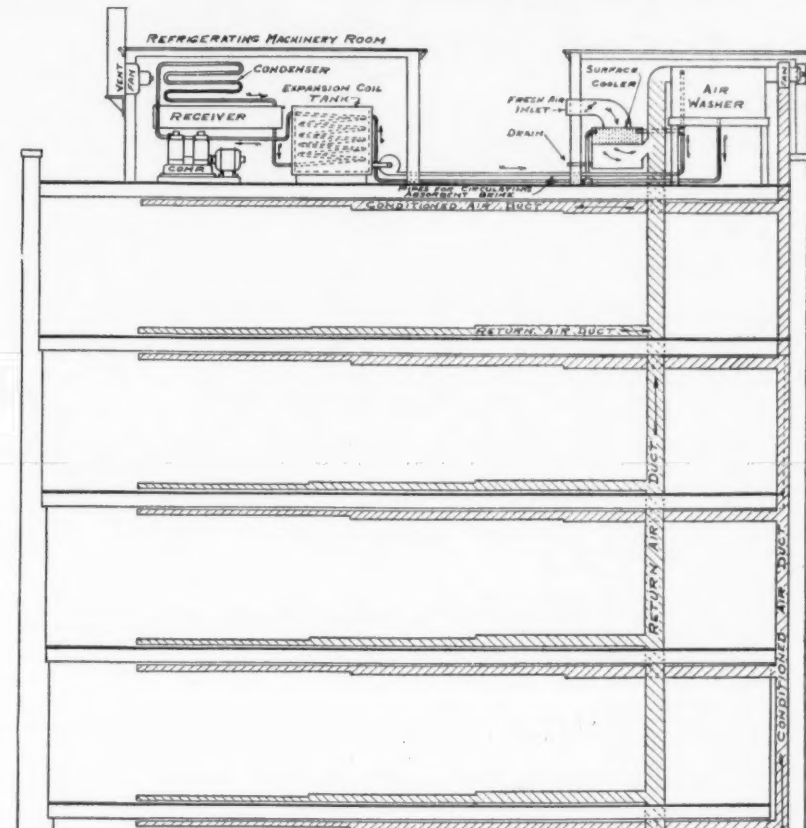
### Offices, Private (171)



# Virginia Smelting Co. to Demonstrate How SO<sub>2</sub> Can Be Used in Air Conditioning Installations



Two views of the equipment which Virginia Smelting Co. has installed in the Electrical Testing Laboratories, New York City, to make a demonstration for officials of the fire and building departments. At the left is shown the air washer in which the air will be conditioned, and some of the test equipment. In the left foreground is a heater with which heat-load conditions are simulated. Connections run through an airtight compartment wall to the machine room shown at the right, where the brine is cooled.



Drawing shows a typical setup of the type which Virginia Smelting Co. officials envisage as being suitable for air-conditioning installations in which sulphur dioxide is used as the refrigerant. In this particular type a combination of spray and surface cooling is used.

## New York City Officials To See Tests

(Concluded from Page 1, Column 1)

water and caustic soda, and the other will consist of water and sodium dichromate. Either of these cooling liquids will absorb vigorously any sulphur dioxide that may get near it, and they both have certain advantages in the spray washing of air, as they each remove or destroy some of the impurities commonly met, Mr. Eustis declares.

The unit as assembled has a refrigeration capacity of approximately 25,000 B.t.u. per hour. It is comprised of a typical 3-cylinder vertical compressor 3 1/2 x 3, 470 r.p.m., operating on sulphur dioxide, with a double copper pipe condenser cooled by water. The compressor is motor driven, and connected with an automatic control operating on the low pressure side of the machine.

An ample iron receiver for the liquefied sulphur dioxide is provided, which receiver is equipped with a gauge glass so that the quantity of sulphur dioxide present can be noted.

The sulphur dioxide is expanded through three thermostatically controlled expansion valves into three coils of iron pipe, which are placed in a steel tank, and thus immersed in the cooling liquid. These coils are 1 1/4 inch extra heavy pipe, and have a combined outside area of approximately 200 sq. ft.

Brine tank in which the expansion coils are immersed, is made of steel and has a net liquid capacity of 450 gallons.

There is a valve placed at about the middle of one of the expansion coils, which can be opened while the unit is in operation, to simulate a leak which might occur if a coil should break.

When this valve is open, sulphur dioxide gas is discharged directly into the cooling liquid, and thus put in the most hazardous possible position

as far as getting into the air system. The brine or cooling liquid is drawn from this tank by a cast-iron centrifugal pump, and delivered against a head of approximately 25 lbs., to a spray nozzle which operates in the air washer. The cooling liquid returns to the brine tank by gravity.

The air washer has a spray chamber 2x2x6 in. in which is placed one No. 10-A cast-iron spray nozzle made by Spray Engineering Co., which has a capacity of 27 1/2 g.p.m. under a head of 25 lbs. pressure. At the end of the spray chamber are dry and wet eliminator plates and filters which prevent any entrainment of the absorbent brine used.

At the inlet end there is a Sturtevant steam heater and a fan for blowing the air through the washer, and at the outlet end there is facility for smelling and sampling the air as it is discharged after washing.

Provision is being made to introduce into the air stream the ordinary impurities that are met in air-conditioning work, such as carbon dioxide,

## Statistical Report of the Chief Medical Examiner of the City of New York

	Total Deaths as per Board of Health	Total Cases Reported by Examiner	Violent Deaths	Total Asphyx. Excluding Suicides, Drown- ing, Etc.	Total Poison- ing	Causes of Deaths								
						SO <sub>2</sub>	Ammonia, Asphyx. and Poison	CO <sub>2</sub>	Illumi- nating Gas Suicides Excluded	Coal Gas	CO Including Auto Exhaust	Elev- ators	Revolv- ing Doors	High- way Acci- dents
1918	98,118	12,806	5,200	547	126	..	2	2	528	16	..	115	1	1,128
1919	74,443	10,828	4,709	443	157	..	2	..	435	6	..	81	2	1,071
1920	73,249	10,721	4,519	438	135	..	1	..	428	8	2	97	..	960
1921	64,257	10,529	4,492	327	175	1	1	..	329	7	1	64	..	1,081
1922	69,690	11,242	4,724	427	157	..	..	..	411	8	8	47	..	1,073
1923	69,452	12,075	5,306	543	146	..	..	..	531	9	3	78	..	1,234
1924	71,262	12,588	5,277	546	145	..	..	..	537	6	3	66	..	1,221
1925	71,864	13,353	5,581	631	140	..	2	..	618	4	9	87	1	1,272
1926	76,082	13,620	5,836	629	141	..	..	4	812	8	5	88	..	1,322
1927	70,430	13,656	5,902	634	129	..	1	..	611	15	8	76	1	1,306
1928	78,091	14,691	6,117	594	184	..	..	..	567	14	13	72	1	1,296
1929	77,482	14,954	6,274	542	130	..	..	3	502	17	20	74	..	1,521
1930	74,886	15,347	6,526	448	193	..	1	..	413	22	13	63	..	1,475
1931	77,418	15,854	6,500	327	169	1	2	..	298	10	19	59	..	1,463
1932	74,319	15,486	6,223	311	168	..	2	1	262	11	37	39	2	1,287
1933	75,153	15,830	5,814	228	110	1	..	1	197	6	20	36	..	1,269
1934	75,857	16,183	5,737	271	95	..	1	..	271	11	47	35	1	1,278
Total 17 yrs.	1,272,045	229,763	94,637	8,086	2,500	3	15	11	7,750	178	209	1,187	9	21,257

Refrigeration and Air Conditioning Market Data Book shows:  
345,000 household refrigerators in New York at end of 1934.  
241,000 household refrigerator machines using SO<sub>2</sub> in New York at end of 1934.  
116,000\* commercial refrigerator machines in New York at end of 1934.  
58,000 commercial refrigerator machines using SO<sub>2</sub> in New York at end of 1934.  
Gas meters in New York City 1,778,322 according to company reports.  
One death with gas from each 230 meters.  
One death with SO<sub>2</sub> from each 100,000 machines.  
\*Prorated from Total United States.



This shows arrangement of 3 hp., 5 hp., 7 1/2 hp., 10 hp. and 15 hp. sizes.

## A Sturdy Quiet-operating Freon-Methyl Unit...

- Built in sizes 1/4 hp. to 25 hp.
- Thoroughly tried and tested
- Rated according to uniform rating method

Ask for specifications

Several good distributor territories open

**CARBONDALE MACHINE CORPORATION**

UNIT OF WORTHINGTON PUMP AND MACHINERY CORPORATION

General Offices: **HARRISON, NEW JERSEY**

Branch Offices and Representatives throughout the World

AR-3622

hydrogen sulphide, and body odors, so that the effect of the particular spray used on these different impurities of the air can be noted.

"Such cooling liquids or brines could of course be used as shown in the demonstration apparatus as sprays, or they could be passed through the ordinary fin coil cooling units and used for surface cooling," said Mr. Eustis.

"Doubtless there are practical applications where the spray would have definite advantage, and other applications where the surface cooling would be better.

"Also, it is quite probable that in many installations a combination of the two methods would prove most economical, for instance: in air conditioning a theater or auditorium, it is desirable to bring into the air stream a certain amount of fresh air, and this could probably best be passed directly over surface coolers so as to precipitate the moisture content therein before the fresh air is mixed with the return air.

"By operating the surface coolers at a reasonably low temperature, it would be possible to eliminate much more than the required amount of moisture to bring fresh air to the desired humidity, and the excess drying accomplished at this point could be used to remove from the air stream any moisture that would be given off by the persons in the theater.

"Preliminary calculations indicate that under fairly average conditions, about half the cooling might advantageously be done with surface coolers, and about half with spray coolers."

In further presenting his case for less restrictive provisions on the use of sulphur dioxide in the New York City code Mr. Eustis has tabulated the report of the city's chief medical examiner to show a comparison between SO<sub>2</sub> and other types of hazards.

## 3 GREAT NAMES in COMFORT COOLING

### AIR-E-FEX

the outstanding cooling and de-humidifying fin coil for use with separate blowers and duct work. Four fins to the inch, on 3/4 in. outside diameter tubing, reduce resistance to the air and lessen accumulation of dirt. Furnished with headers for efficient distribution of the refrigerant. Made of copper tubing with copper fins, hot-tin dipped after fabrication. Air-E-Fex tin-dipping greatly increases cooling efficiency over coils with mechanical bond between fins and coils.

### COMF-E-FEX

the suspended-type Forced Draft air-conditioning unit which both cools and dehumidifies. The unit consists of a finned coil element with motor-driven fan, enclosed in a sturdy metal housing, fully insulated. The fan, quiet in action, draws the warm air through the coil, where it is cooled, and then distributes it to all parts of the room. COMF-E-FEX is a high-efficiency commercial type comfort cooler for offices, restaurants, undertaking parlors, stores and similar types of installation.

### SAN-E-FEX

the floor-type, Forced Draft air conditioning unit which not only cools and dehumidifies the air, but also filters it. Like Comf-E-Fex, it is built upon the principle of drawing the air through the coils instead of blowing it. A quiet, sanitary unit especially adaptable for store, office, restaurant and similar installations where ceiling suspension is impracticable.

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SUR-E-FEX, FAN-E-FEX (Standard and DeLux), TRANS-E-FEX, VERT-E-FEX,  
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**REFRIGERATION APPLIANCES, INC.**

H. J. Krackowizer, President

1342 W. Lake Street, Chicago





## Passenger Quarters On New Cunard Boat Will Be Conditioned

LONDON, England—The *Queen Mary*, newest passenger boat in the Cunard-White Star line, will be equipped with a complete air-conditioning system, to permit her to manufacture her own weather as she crosses the Atlantic.

Passengers on the liner will dine, dance, lounge, and sleep in air-conditioned comfort, regulated, in private quarters, to their own particular requirements.

Air will be drawn in and passed through a spray-washer, inside of which fine sprays of fresh water will clean it of all impurities. The air will absorb water until it is saturated.

Next the air will pass through coils of pipes, to attain its required humidity, after which it will be conditioned to the degree of humidity and temperature most suitable to the majority of ocean travelers.

While air conditioning has already been applied to one room in each of several ships, the *Queen Mary's* system will cover all passenger quarters. Passengers will be able to control personally the temperature of their staterooms, the system providing separate supplies of warm and cool fresh air to each room.

The air in dining rooms and lounges may be kept constantly at any desired degree of temperature or humidity, according to weather conditions outside. Basis of the ship's conditioning will be a temperature of 70° F. with 55 per cent relative humidity in summer, and 65° F. with 65 per cent relative humidity in winter.

Temperatures will be controlled by a system of warm and cold pipes. Too-warm air will be passed over pipes in which cold water from the ship's refrigerating system is circulated; too-cold air will be passed over hot water pipes.

Next the air will go through enclosed fans, powered by electric motors, from whence it will be delivered, through insulated ducts, to the rooms. Here it will enter through small slots, at velocities low enough to eliminate noticeable air movement. Exhaust ducts will be located at the floor level.

## Sales Value of Honey Is Increased by Storage in Air-Conditioned Room

HAMILTON, Ont.—Air conditioning of the honey storage room of the Hodgson Apiary of Jarvis, Ont., is claimed to have increased the value of the honey between one and two cents per pound, representing an increased income of \$1,500 per year.

Installation of Universal Cooler refrigeration equipment was made by the Culley Electric Co., Hamilton.

By means of the refrigeration equipment, a room 18x20x17 ft., in which the honey is stored, is maintained at a temperature of 50° F. and 20 per cent relative humidity. Forced circulation of air at the rate of 750 c.f.m. is employed and the low humidity, in addition to improving the honey, tends to prevent containers from rusting.

The installation is said to be the first of its kind in Ontario and was installed on the recommendation of the Ontario Agricultural College.

## New Lipman Distributor

KLAMATH FALLS, Ore.—Oregon Equipment Co., 115 S. Seventh St., has been appointed by General Refrigeration Sales Co. as distributor of Lipman refrigeration and air-conditioning equipment. The territory to be covered includes counties in southern Oregon and northern California.

## Location of Air-Conditioning Installations in Chicago

Name and Address	Equipment and Installed by	Tonnage	Refrig. Hp.
<b>Offices, Private</b> (Continued from Page 16, Column 5)			
*Montgomery Ward (V-P. Folsom), 619 Chicago Ave.	Carrier	1	1
*Montgomery Ward (V-P. Hoving), 619 Chicago Ave.	Carrier	1	1
*Morton Bldg. (D. Peterkin), 208 W. Washington St.	Kroeschell	1	1
*Music Corporation of America, 32 W. Randolph St.	Frigidaire	1	1 1/2
*Nacey, F., 927 S. State St.	York-Sampson	3 1/2	7 1/2
*National Underwriters, 175 W. Jackson Blvd.	Ilg	3	3
*National Tea Co., 1000 Crosby St.	General Electric	3	3
*Nutrine Candy Co., 419 W. Erie St.	Carrier	1	1
*Oberfelder, H. M., 110 S. Dearborn St.	York-Sampson	3 1/2	7 1/2
*Pabst Corp., 221 N. LaSalle St.	Carrier (yrd)	2	2 1/2
*Pepodent Co., 917 N. Michigan Ave.	General Electric	6	6 1/2
*Portland Cement Association, 33 W. Grand Ave.	Narowitz	0	0
*Pratt & Lambert Co., 320 W. 26th St.	Kroeschell	1 1/2	1 1/2
*Public Service Co., 72 W. Adams St.	Frigidaire	1	1
*Rialto Trust Co., 332 S. LaSalle St.	Campbell	3	4
*Rothschild, Maurice L., 304 S. State St.	Frigidaire	1	1
*Sampson, Mr., 3201 S. Michigan Ave.	York-Sampson	3 1/2	7 1/2
*Scientific Oil Comp. Co., 1641 S. Kilbourn Ave.	Carrier	3	3 1/2
Seabury, C. Ward, 175 W. Jackson Blvd.	Peerless	2	2 1/2
Simpson, James, 72 W. Adams St.	Bruno-Kroeschell	7 1/2	9 1/2
*Sisakraft Co., 205 N. Wacker Dr.	Airgrad	1	1
*Sears Roebuck & Co. (Barker), Homan Ave.	Frigidaire	2	2
*Sears Roebuck & Co. (Nelson, v.p.),			
Arthington & So. Homan	Frigidaire	1	1
*Sears Roebuck & Co., Arthington & S. Homan	Frigidaire	3	3
*Sears Roebuck (Carney, v.p.),			
Arthington & S. Homan	Frigidaire	1	1
*Smith, Clayton E., County Bldg.	Ilg	1	1
*Smith, F. L., 72 W. Adams St.	Carrier	1	1
*Smith, P. L., 72 W. Adams St.	Frigidaire	1 1/2	1 1/2
*Smith, Burris & Co. (Invest.), Field Bldg. (32 Fl.)	Kroeschell	5	7 1/2
*Sonnenschein, Berkson, Etc., 77 W. Washington St.	Carrier (yrd)	3	3
*Standard Oil Co., Ind. (Dir. Rm.), 910 S. Michigan	Carrier	6	6 1/2
*Star & Garter Theater, 315 W. Madison St.	Wendt & Crone	1 1/2	1 1/2
*Steele Wedeles Co., 312 N. Dearborn St.	Ilg	1 1/2	1 1/2
Stein, L., 215 S. LaSalle St.	Ilg	1 1/2	1 1/2
*Steindl, J. & Sons, 5744 N. Western Ave.	Westing-Hyland	1 1/2	1 1/2
*Teletype Co., 1400 Wrightwood Ave.	Ilg	1 1/2	1 1/2
*Transo Envelope Co., 3512 N. Kimball Ave.	Kroeschell	1 1/2	1 1/2
*Traver, Geo. W., 358 E. Ontario St.	Frigidaire	1	1 1/2
*Turner & Turner, 185 W. Randolph St.	Frigidaire	1	1 1/2
*United Air Lines, 5940 S. Cicero Ave.	Ilg	2 1/2	2 1/2
*United Autographic Register, 5009 S. California Ave.	Frigidaire-Chutkow	2 1/2	2 1/2
*Vapor Car Heating Co., 80 W. Jackson Blvd.	Univ. & Alum. Fin.	2	2
*Victor Chemical, 141 W. Jackson Blvd.	General Electric	1	1 1/2
Victor Mfg. & Gasket Co., 5700 Roosevelt Rd.	Carrier	1	1
*Victor Mfg. & Gasket Co., 5700 Roosevelt Rd.	General Electric	3	3
*Wallace Press, 730 W. Monroe St.	Ilg	1	1 1/2
*Western Screw Mfg. Co., 3217 W. 47th Pl.	Frigidaire	1	1
Whiting, F. C., 20 Wacker Dr.	Kroeschell	1	1
*Wilkinson, G. D., 680 N. Sacramento Ave.	York-Sampson	3 1/2	7 1/2
*Williamson, G. W., 72 W. Adams St.	Frigidaire	1	1
*Wills, H. E., 1047 W. 4th St.	Carrier	2	2 1/2
*Wilson, Mr., 100 W. Adams St.	General Electric	1	1 1/2
*Winston, Strawn & Shaw, First Nat'l Bk. Bldg.	Carrier (yrd)	1	1
*Wurlitzer (A. L. Owens), 529 S. Wabash Ave.	Ilg	1 1/2	1 1/2
*Zack Co., Inc. (Vent. Eng.), 1139 W. VanBuren St.	Frigidaire	2	2
		290 1/2	343 1/2

## Residences (69)

*Barry, Mr. John F., 138 S. Hamlin Ave.	Westing-Kroeschell	1 1/2	1 1/2
*Block, E. J., 4928 Greenwood Ave.	Westing-Kroeschell	1 1/2	1 1/2
*Brandenburg, Mr. G. G., 6900 South Shore Dr.	Carrier-Air Comfort	3	3
*Brown, Aluis J., 70 Cedar St.	Kroeschell	1 1/2	1 1/2
*Chicago Club, 404 S. Michigan Ave.	York-Sampson	1 1/2	1 1/2
*Congress Hotel, 508 S. Michigan Ave.	Frigidaire	1	1
*Cowan, Alfred, 1130 Lake Shore Dr.	Campbell	1 1/2	1 1/2
*Crass, Dr. E. W., 6449 Magnolia Ave.	Frigidaire	1 1/2	1 1/2
*Cunio, Frank, 4849 Sheridan Rd.	General Electric	1 1/2	1 1/2
*Cunio, Mr. John F., 3300 Lake Shore Dr.	Frigidaire	1	1 1/2
*Curran, Mrs. Marion D., 220 E. Walton Pl.	General Electric	1 1/2	1 1/2
*Davis, Charles, 8230 S. Michigan Ave.	York-Sampson	3 1/2	7 1/2
*Fleming, J. O., 4353 Drexel Blvd.	Frigidaire	1	1 1/2
*Griffin, John, 3806 S. Michigan Ave.	Kroeschell	1	1
*Harding, George F., 4833 Lake Park Ave.	Frigidaire	1	1 1/2
*Harrison, Sargent, 6030 Forest Glen Ave.	General Electric	3	3
*Hasehorn, Walter, 2434 Essex Ave.	York-Sampson	3 1/2	7 1/2
*Hear, Eugene, 2742 N. Albany Ave.	Ilg	1 1/2	1 1/2
*Horn, Harry G., 5257 Bernard St.	Frigidaire	1	1 1/2
*Hokin, Mr. Barney, 5211 Drexel Ave.	Assembled	1 1/2	2
*Jacques, L. T., 6134 Kenmore Ave.	Frigidaire	1	1
*Jones, J. P., 4726 S. Michigan Ave.	Frigidaire-Sundberg	1	1
*Joyce, W. T., 4614 S. Woodlawn Ave.	General Electric	1 1/2	1 1/2
*Kaplan, M. S., 5555 S. Everett Ave.	General Electric	1 1/2	1 1/2
*Kasath, Mr. Orlan, 7041 Constance Ave.	Frigidaire-Sundberg	1	1
*Kelly, Edward J., 4321 Ellis Ave.	Frigidaire	1	1 1/2
*Kennedy, Mrs. Mary, 7608 S. Morgan St.	Kelvinator	3 1/2	3 1/2
*Klein, Joseph A., 5517 N. Paulina St.	Westing-Kroeschell	2 1/2	2 1/2
*Kline, F., Standard Club	Carrier	2	2
*Levinson, Sam, 3445 W. Adams St.	Ilg	1 1/2	1 1/2
*Lewis, L., 2430 Lakeview Ave.	General Electric	1 1/2	1 1/2
*Logan, Frank G., 1150 Lake Shore Dr.	Carrier (Baldwin)	1	1
*McCormick, John A., 4940 Greenwood Ave.	Amer.-Carbonic	20	26 1/2
*Macbbs, John (Engr.), 5300 N. Kenmore Ave.	Assembled	1	1
*Moriarty, John P., 5129 S. Michigan Ave.	Chrysler-Altemp	3 1/2	3 1/2
*Morris, Edward, 2430 Lakeview Ave.	Fairbanks Morse	3 1/2	3 1/2
*Nash, Patrick A., 3234 Washington Blvd.	General Electric	2	2 1/2
*Oberfelder, A. M., 5333 Hyde Park Blvd.	Frigidaire	1	1 1/2
*Oberfelder, A. M., 5333 Hyde Park Blvd.	Frigidaire	1	1 1/2
*O'Neill, E. M., 2643 Clybourne Ave.	Frigidaire	2	2
*Pack, W. F., Morrison Hotel	Frigidaire	1	1
*Parker, Mr. Wm., 10443 Campbell Ave.	Carrier	1	1 1/2
*Poinsettia Hotel, 5528 S. Hyde Park Blvd.	General Electric	1	1 1/2
*Quinn, Rev. T. F., 2157 Humboldt Blvd.	Frigidaire	1	1 1/2
*Rogenstein, Joseph, 3833 Sheridan Rd.	Kroeschell	6	8
*Ritter, A., 8025 S. Throop St.	Frigidaire	1	1 1/2
*Riddiesbarger, Mr. M., 1400 Lake Shore Dr.	Airgrad	1 1/2	1 1/2
*Rosset, B. L., 2920 Commonwealth Ave.	General Electric	1	1
*Roth, Nicholas B., 2041 Pierce St.	Ilg	1 1/2	1 1/2
*Sammons, Wheeler, 536 Deming Pl.	Ilg	1 1/2	1 1/2
*Schmitt, Mr. R. G., 6809 Euclid Ave.	Carrier-McFarland	3	3 1/2
*Schwerin, Mr. (Bestor), 1240 Astor St.	Carrier (yrd)	1	1
*Sheldrake Hotel, 4518 S. Clarendon Ave.	Frigidaire	1	1 1/2
*Silberman, Herbert S., 4549 Greenwood Ave.	Carrier (yrd)	1	1 1/2
*Smith, K. G. (33rd Fl.), Palmolive Bldg.	Carrier	2	2 1/2
*Sutcliffe, Mrs. Gertrude G., 4955 Kimbark Ave.	General Electric	14	14 1/2
*Swift, G. F. Jr., 1551 N. Astor St.	Carrier	1	1
*Templin, Mr., 900 N. Michigan Ave.	General Electric	3	3
*Terander, O., 850 Castwood Ter.	Ilg	1	1
*Troup, Judson R. (Tel. Co.), 6236 Greenwood Ave.	Kroeschell	1 1/2	1 1/2
*Walker, I. N., 7321 So. Shore Dr.	Ilg	1 1/2	1 1/2
*Williams, Edward, 4857 Wolfram St.	Frigidaire	1 1/2	1 1/2
*Wolfenden, Dr. J. R., 6200 Kenmore Ave.	General Electric	1	1 1/2
*Wolff, Ben, 1947 Kildare Ave.	General Electric	1 1/2	1 1/2
*Worcester, C. H., 1323 N. State St.	Kroeschell	1	1 1/2
*Zeckel, Dr. Gustav, 2705 Winnemac Ave.	Kroeschell	1 1/2	1 1/2
*Zeisler, Erwin P., 4840 S. Ellis Ave.	Westing-Kroeschell	1 1/2	1 1/2
		109 1/2	125 1/2

## Restaurants (143)

*Anne's Restaurant, 91 West Randolph St.	Wittenmeier	20	55
*Anne's Restaurant, 57 East Adams St.	Wittenmeier	15	28
*Anne's Restaurant, 87 West Randolph St.	Frigidaire	10	12
*Berghoff Restaurant, 17 West Adams St.	York-Mehring & Hansen	40	45
*B/G Sandwich Shop, 1538 E. 53rd St.	Carrier-Air Comfort	10	11
*B/G Sandwich Shop, 119 S. Clark St.	Kroeschell (incl. in "Triangle")	10	11
*B/G Sandwich Shop, 67 E. Adams St.	Carrier-Air Comfort	15	15
*B/G Sandwich Shop, 640 N. Michigan Ave.	Carrier-Air Comfort	15	15
*Bismark Inn, 124 N. LaSalle St.	Vilter (See Bismark Hotel)		
*Blackhawk Cafe, 39 E. Randolph St.	Reliance-H.P. Reger	15	18
*Blue Danube Grill, 181 N. State St.	Kroeschell	10	11
*Boston Oyster House, 21 S. Clark St.	York	35	40
*Boston Store, State & Madison St.	Assembled	60	62
*Brevoort Hotel (3 Restaurants), 120 W. Madison St.	General Electric	60	62
*Burnham Bldg. Restaurant, 160 N. LaSalle St.	U.S. Air Cond.	0	8
*Candy Box, 29 N. State St.	Ilg	10	13
*Cape Cod Room-Drake, 140 E. Walton Pl.	Assembled	7	8 1/2
*Carders Restaurant, 118 N. Dearborn St.	Hattis	8 (Ice)	2
*Chez Paree, 247 E. Ontario St.	U.S. Air Cond.	0	22 1/2
*Club Alabam, 247 E. Rush St.	G.E.-Davis Construc.	7 1/2	8
*Cocktails for Two, 1934 E. 71st St.	Bloom	0	5
*Cocoanut Cafe, 7223 S. Chicago Ave.	Assembled	15	19
*Colosimos Restaurant, 2126 S. Wabash Ave.	York-Assembled	20	23
*Conway Restaurant, 111 E. Washington St.	Carrier	20	23
*DeLazon Grill, 131 N. Dearborn St.	York-Westerlin & Campbell	30	30
*DeMet's, Inc., Adams & State St.	Wittenmeier	50	77 1/2
*DeMet's, Inc., Madison & State St.	Copeland	4	4 1/2
*DeMet's, Inc., 312 W. Madison St.	Drying Systems	18	20
*DeMet's, Inc., 5 W. Randolph St.	Carrier	25	30
*DeMet's, Inc., 1 North LaSalle St.	Carrier	30	40
*DeMet's, Inc., 332 N. Michigan Ave.	York-Kaiser-Hattis	20	27 1/2
*DeMet's, Inc. (Ed. of Trade), 141 W. Jackson Blvd.	Wittenmeier	80	100
*DeMet's, Inc., 75 W. Washington St.	York-Wester. Camp.	15	17
*Eitel, Inc., 520 W. Madison St.	Wittenmeier	75	130
*Eitel's Restaurant, 100 W. Adams St.	Carrier	20	20 1/2
*Exchange Cafe, 175 W. Jackson Blvd.	General Electric	15	16 1/2
*Feltman's Sandwich Shop, 35 N. Dearborn St.	York	7 1/2	8 1/2
*Fish Bar & Restaurant, Inc., 32 S. Michigan Ave.	Assembled	20	25

Name and Address	Equipment and Installed by	Tonnage	Refrig. H.P.
Gimbels, Inc. (from Oriental), 30 W. Randolph St.	Kroeschell	35	75
Gold's Restaurant, 808 W. Roosevelt Rd.	Kroeschell	40	78
Goodman Brothers, 1128 W. 14th Pl.	U.S. Air Conditioning	0	8
Graylings Restaurant, 114 W. Madison St.	G.E.-Advance Heating	15	18
Great Northern Bar, Dearborn & Jackson	Carrier-Air Comfort	0	1 1/2
*Green Mill, 178 W. Randolph St.	U.S. Air Conditioning	0	10
*Grossmans, 18 N. Clark St.	U.S. Air Conditioning	0	5 1/2
Harungs, J. P., 132 W. Van Buren St.	Ilg-Vilter	5	10
Harungs, J. P. (Colonial Rm.), 21 S. Wabash Ave.	U.S. Air Conditioning	0	15
Harungs, J. P., 114 W. Monroe St.	U.S. Air Conditioning	0	10 1/2
Harungs, J. P., 68 W. Madison St.	Midwest-Austerl.	25	28
Harungs Restaurant, 332 S. LaSalle St.	Reliance-Burge	30	40 1/2
Harungs Restaurant, 131 N. Clark St.	Midwest-Austerl.	30	35 1/2
Harmony Cafeteria, 540 S. Wabash Ave.	York	15	16 1/2
Harmony Cafeteria, 58 W. Washington St.	York	35	41
Harmony Cafeteria, 10 S. Wabash Ave.	York	50	55
Harmony Cafeteria, 214 S. State St.	Kroeschell	25	50
Harmony Cafeteria, 21-29 S. Dearborn St.	York-Wester.-Camp.	50	59
Harry's New York Bar, 400 N. Wabash Ave.	U.S. Air Conditioning	0	13
Heibel's Restaurant, 10 S. LaSalle St.	Reliance	15	18
Heibel's Restaurant, 71 W. Randolph St.	Vilter-Hartman	65	90
Hillmans Restaurant, 24 W. Washington St.	Bruno-Kroeschell		
	Wittenmeier (See "Hillmans Store")		
Hoe-Sai-Gae Restaurant, 75 W. Randolph St.	Wittenmeier	20	30
Huyler's Restaurant, Palmolive Bldg.	Kroeschell	20	28
Heibel Restaurant, Otis Bldg.	U.S. Air Conditioning	0	5
Ins. Exchange Choc. Shop, 170 W. Jackson Blvd.	York	6 1/2	9
Ireland's Oyster House, 634 N. Clark St.	Assembled	0	5 1/2
Isabel's Restaurant, 590 Diversey Pkwy.	General Electric	5	6
Jucius Sisters Restaurant, 1008 W. 47th St.	Hilger	7 1/2	8
*Key Club, 150 E. Ontario St.	Servel-Hanley	5	5 1/2
*Kitty Davis Bar, 243 S. Wabash Ave.	York-Wester.-Camp.	10	11 1/2
*L'Aiglon Restaurant, 30 E. Ontario St.	Frick	15	20
*Lauer Sisters Eat Shop, 462 W. 63rd St.	General Electric	10	11 1/2
Lawson Y.M.C.A., 30 W. Chicago Ave.	Trane	0	1
Lawson Y.M.C.A., 30 Chicago Ave.	Frick-Conlon-Air Comfort		
Leavitt Bros. Food Shop, 1323 S. Halsted St.	Sampson Electric	20	30
Littlehouse (Chinese), 1563 Howard St.	U.S. Air Conditioning	0	8
Little Jack's Restaurant, 3175 W. Madison St.	Kroeschell	35	48
M & C Cafeteria, 3900 W. Madison St.	U.S. Air Conditioning	0	8
Market Luncheonette, 1427 S. Racine Ave.	Thermal Unit	5	1 1/2
Martin's Restaurant, 321 S. Sherman St.	Wendt & Crone	15	18
Mayfair Restaurant, 104 S. Wabash Ave.	Chrysler-Fairbanks	15	17
Maurice Restaurant, 173 W. Madison St.	Carrier (Steam)	30	15 1/2
Medinah Athletic Club, 505 N. Michigan Ave.	Ilg-Air Comfort-Wendt & Crone		
	York-Wendt & Crone	30	31
Merit's Cafeteria, 1113 E. 63rd St.	York-Wendt & Crone	25	25
Merchandise Restaurant, Inc., 220 N. Bank Dr.	Amer.-Carbonic	100	140
*Mitchell's Restaurant, 18 S. Clark St.	Acme-Carrier	20	25
*Muller's Restaurant, 188 W. Randolph St.	U.S. Air Conditioning	0	20
Nankin Restaurant, 188 W. Randolph St.	U.S. Air Conditioning	0	20
*Normandy Inn, 100 N. LaSalle St.	Assembled	25	25
*North American Restaurant, State & Monroe Sts.	Vilter	65	84
*O'Connell's Restaurant, 64 W. Madison St.	Midwest	10	12
*O'Connell's Restaurant, 1112 Wilson Ave.	Carrier	3	5
Ogden Grill, 192 N. Clark St.	Kaiser-Midwest	15	16 1/2
Old Heidelberg, 14 W. Randolph St.	Vilter	20	25
Omega Cafeteria, 125 N. Wabash Ave.	General Electric	40	40
*Pittsfield Grill, 55 E. Washington St.	Stan. Sht. Metal	4	5
*Pixley & Ehlers, 205 S. Wabash Ave.	Midwest-Harbula	14	14
*Pixley & Ehlers, 180 N. Wells St.	Midwest-Harbula	18	18
*Pixley & Ehlers, 206 W. Jackson Blvd.	Midwest-Harbula	15	14 1/2
*Pixley & Ehlers, 33 W. Madison St.	Bruno-Kroeschell-Harbula		
	Harbula	50	73
*Pixley & Ehlers, 1606 W. Madison St.	Harbula	20	25
*Pixley & Ehlers, 73 W. Jackson Blvd.	Burge	15	17 1/2
*Pixley & Ehlers, 20 S. Clark St.	Midwest	30	33
*Pixley & Ehlers, 13 E. Van Buren St.	Midwest	30	33
*Pixley & Ehlers, 34 N. Wells St.	Burge	20	23 1/2
*Pixley & Ehlers, 808 W. Madison St.	Midwest	20	23 1/2
*Pixley & Ehlers, 4752 W. Western Ave.	Frigidaire	20	24
*Price's Grill, 224 S. Wells St.	Carrier	20	20
Riccardio Studio Restaurant, 437 Rush St.	Freezeasy Elec.	6	6
Rickett's (E) Restaurant, 103 E. Chicago Ave.	General Electric	10	12
Rickett's Restaurant, 272 N. Clark St.	General Electric	13	13
Rickett's Restaurant, 1004 N. Clark St.	U.S. Air Conditioning	0	3
Rickett's Restaurant, 272 N. Clark St.	General Electric	20	33
Sally's Restaurant, 4650 Sheridan Rd.	Kroeschell	30	33
Sheridan Restaurant, 3946 Sheridan Rd.	U.S. Air Conditioning	0	12 1/2
Siegel's Restaurant, 826 So. Chicago Ave.	Acme-Carrier	20	21
Stop & Snop, 24 W. Washington St.	Kroeschell-Wittenmeier (See "Hillmans")		
*Superior Tea Room, 1748 W. 95th St.	General Electric	5	6
Sully's Restaurant, 112 W. Monroe St.	Carrier-Wendt & Crone-Air Comf.	15	15 1/2
The Copeland Hotel, 5009 N. Sheridan Rd.	G.E.-Adv. Heat.	20	23
The Chicken Shack, Inc., 4647 Indiana Ave.	General Electric	5	5 1/2
The Ranch (G.T.), 123 E. Oak St.	U.S. Air Conditioning	0	10 1/2
Thomas J. Collins, 3147 E. 79th St.	General Electric	5	6
Thomas J. Collins Restaurant, 7145 N. Clark St.	Mulish & Murray (Ice)	4	5
Thompson's Restaurant, 27 W. Randolph St.	Vilter-Hartman	65	75
Tower Grill, 72 E. Madison St.	York	7 1/2	9
Triangle Restaurant, 57 W. Randolph St.	Carrier	75	95
Triangle Restaurant, 6 S. Clark St.	Burge	20	30
Triangle & Two Stores, 119 S. Clark St.	Kroeschell	60	90
Triangle Restaurant, 111 W. Madison St.	Frick-Mid-West	32	85
Triangle Restaurant, 225 S. Wabash Ave.	Bruno-Kroeschell	60	90
Triangle Restaurant, 6 S. Clark St.	Carrier	5	5
225 Club, 225 E. Superior St.	Frigidaire	3	3
225 Club, 225 E. Superior St.	Am. Refrig. System	0	20
225 Club, 225 E. Superior St.	Frigidaire	18	20
Vassar House, 540 N. Michigan Ave.	Carrier-Acme	20	23
Wanese Restaurant, 208 W. Adams St.	Carrier-Air	0	3
Voigt's, 207 W. 63rd St.	Frigidaire	3	3
Voigt's, 6309 S. Halsted St.	Carrier	6	6
Voigt's, 6305 Cottage Grove Ave.	Carrier	3	3 1/2
W & R Sandwich Shop, 78 W. Randolph St.	Kelvinator	25	25
Walter Power's Co., Madison & Crawford	Ilg	32	42
White Horse Tavern, 2720 N. Clark St.	York	15	17 1/2
White Horse Restaurant, 2107 E. 71st St.	Corbond	7	8
Younkers Restaurant, 1510 Hyde Park Blvd.	Kelvinator	20	21 1/2
Younkers Restaurant, 51 E. Chicago Ave.	Kelvinator	40	45
		2,699 1/2	3,707 3/4
Stores, Candy (16)			
Andes Candies, 11109 S. Michigan Ave.	Ilg	1 1/2	2
Andes Candies, 7154 W. Grand Ave.	York	2	2 1/2
Andes Candies, 1583 Milwaukee Ave.	York-Wester. & Camp.	1	1 1/2
Andes Candies, 2700 Milwaukee Ave.	York-Wester. & Camp.	1	1 1/2
Andes Candies, 7854 S. Ashland Ave.	York-Wester. & Camp.	1 1/4	1 1/2
Andes Candies, 4015 W. North Ave.	York-Wester. & Camp.	1 1/4	1 1/2
Andes Candies, 3160 Lincoln Ave.	York-Wester. & Camp.	2	2 1/2
Andes Candies, 3948 Lawrence Ave.	York-Wester. & Camp.	2	2 1/2
Andes Candies, 4001 Lincoln Ave.	York-Wester. & Camp.	1 1/2	1 1/2
Mrs. Snyders, 2030 East 71st St.	Carrier	3	3
Mrs. Snyders, 20 South Dearborn St.	Carrier	3	3
Mrs. Snyders, 332 South LaSalle St.	Campbell	5	6
Mrs. Snyders, Palmer House	General Electric	3	3
Mrs. Snyders, 65 West Randolph St.	Vilter On Henri's system		
Mrs. Stevens Candy Shop, 52 W. Washington St.	Frigidaire	1	1 1/2
Teakwood, Inc., 53 East Madison St.	Copeland	4	4
		32 1/2	36



# The Refrigeration Engineer's Manual

By S. L. Potts

## Advantages & Disadvantages of Different Types of Compressors

### Chapter 3—Compressors

(Continued from Last Issue)

#### Vertical Single Acting Compressor Advantages

By referring to Fig. 15 it can be seen that the advantages of a vertical single acting compressor are:

1. The clearance volume when the piston is at the end of its stroke can be made very small because the head of the piston is smooth and the head of the cylinder is smooth. There are no ports or passages to or from valves. This allows the piston to be brought very close to head, only enough clearance to prevent actual contact or striking. This gives high volumetric efficiency of compressor.

2. The design makes it possible to use a safety head in the cylinder that would release any slug of liquid that might enter the cylinder by mistake and thus prevent any harm being done to head.

3. The compression of gas only takes place at the head end of cylinder, and that end only is water cooled. The remainder of the cylinder is lagged with insulating material to prevent the suction gases from becoming warmed and expanded which would

lower the volumetric efficiency if gases were heated.

A water jacket full length of cylinder would do more harm than good because the gases enter the cylinder at a temperature lower than the temperature of the cooling water usually available. This would tend to heat rather than cool the incoming gas. The water in the water jacket only removes a very small percentage of

#### Small Valves

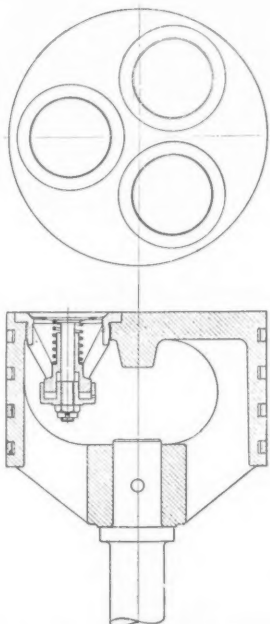


Fig. 20—Piston with three small suction valves.

the heat generated by compression.

4. The inertia of the piston which contains the suction valve aids in opening the suction valve at the beginning of the suction stroke (down) and also aids in closing this valve at the end of the suction stroke. (At the bottom of stroke.) It requires only a very light spring pressure on this valve.

5. The area of gas passages through this cylinder can be made comparatively large, thus reducing the friction loss of gases passing through.

6. The vertical compressors occupy less floor area for a given capacity.

7. The vertical twin cylinders with cranks set at 180 degrees apart give a more even power drag on an electric motor drive than a single cylinder. This reduces the power cost of operation.

8. The stuffing box on the piston rod is never subjected to a pressure higher than the suction pressure on the system. In the vertical enclosed type the stuffing box is done away with entirely.

9. The suction valve in the piston has a small cushion cylinder on the stem to insure quiet seating of the valve at high speeds.

10. The wear on cylinder walls and piston rings is small and what there is, is uniformly distributed around the cylinder.

#### Vertical Single-Acting Compressor Disadvantages

1. It requires a larger size cylinder for a given output.

#### Horizontal Double-Acting Compressor Advantages

1. Gives a greater discharge capacity of gas for a given size cylinder.
2. Can be built in larger size units.
3. Spherical heads when used give greater valve areas and increased strength of heads.

#### Horizontal Double-Acting Compressor Disadvantages

1. The clearance volume is usually larger due to the ports and passages in the heads and the clearance between head and piston, which is required in order to prevent piston striking either head, either when cold (not operating) or when hot and expanded (operating temperature). When the compressor is cold and contracted, the clearance on the crank end between piston and head must be sufficient to clear piston. When operating and expansion has taken place, the clearance on the head end must be sufficient to clear piston. This requires greater clearance between piston and heads.

2. The greater clearance volume lowers the volumetric efficiency of the compressor.

3. A long stuffing box is required for the piston rod to insure a perfect tight seal. This also requires a lantern in the long box to insure good lubrication of the piston rod packing.

4. High pressure or head pressure is carried on the stuffing box.

5. The wear on the cylinder walls and piston rings is on the lower side, tending to wear the cylinder walls oval.

6. Some types of horizontal compressors may have difficulty to get uniform lubrication inside compressor cylinder.

In Fig. 19 is shown the arrangement of the piston which contains the suction valves in a single acting vertical compressor. This type is manufactured by York Ice Machinery Corp.

In Fig. 21 is shown the safety head and the discharge valve of a vertical twin-cylinder compressor manufactured by Carbondale.

(To Be Continued Next Week)

### Synopsis of Preceding Instalments

Chapter I, starting in the Jan. 1, 1936, issue and continued in the Jan. 8 issue, explains the physical laws involved in the process of producing artificial refrigeration and the principal types of systems used. This introductory chapter also defines the terms and units of measurements used frequently in later discussions.

Chapter II, in the Jan. 15 issue gives a comprehensive survey of the characteristics of all the various chemicals which may be used as refrigerants, with the advantages and disadvantages of those most commonly selected in commercial practice.

Chapter III, the first instalment of which appeared in the Jan. 22 issue, deals with compressors and their functions, with a classification of the types and the advantages and disadvantages of each variety. The second instalment appears in this issue.

THE REFRIGERATION ENGINEER'S MANUAL will be offered in book form about May 1, 1936. Approximately 300 pages. Price \$3.00 per copy. The MANUAL in combination with a subscription to the NEWS costs \$5.00 if check is sent with order.

### Use of Safety Head

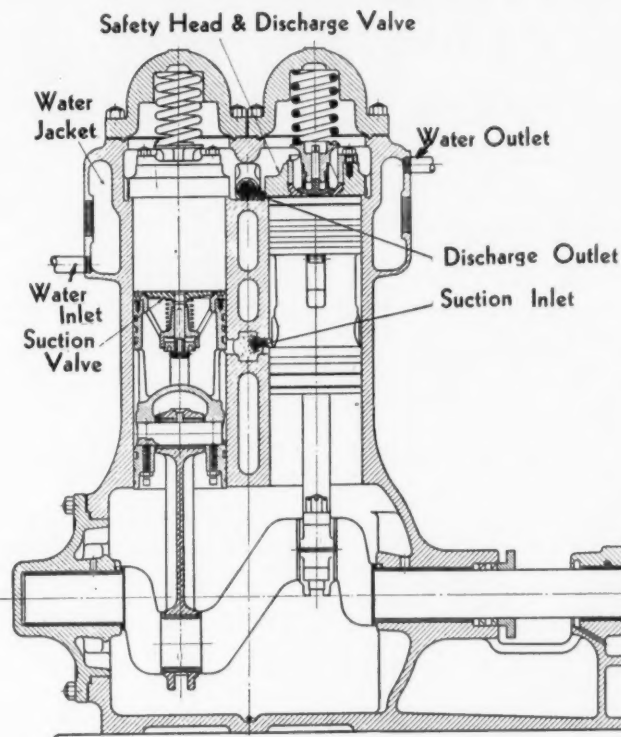


Fig. 21—Sectional view of vertical twin-cylinder compressor showing safety head and discharge valve. This machine uses trunk-type pistons with single suction valves. The compressor is manufactured by Carbondale Machine Co.

#### Large Suction Valve

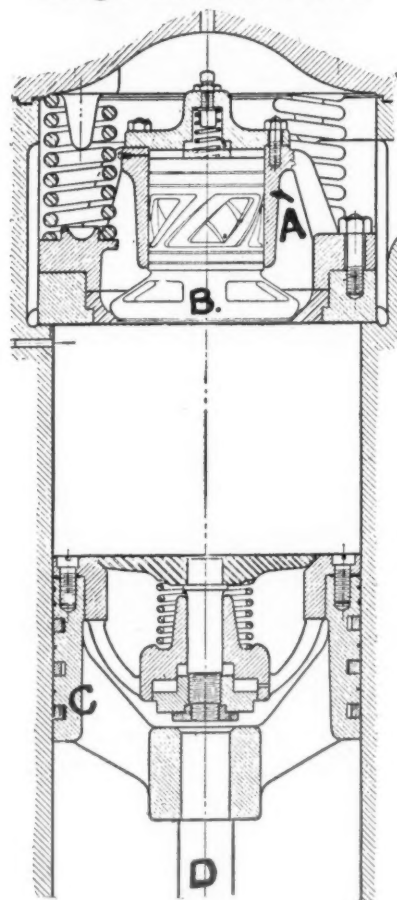


Fig. 19—Piston with one large suction valve.

### Rotary Compressor by Vilter

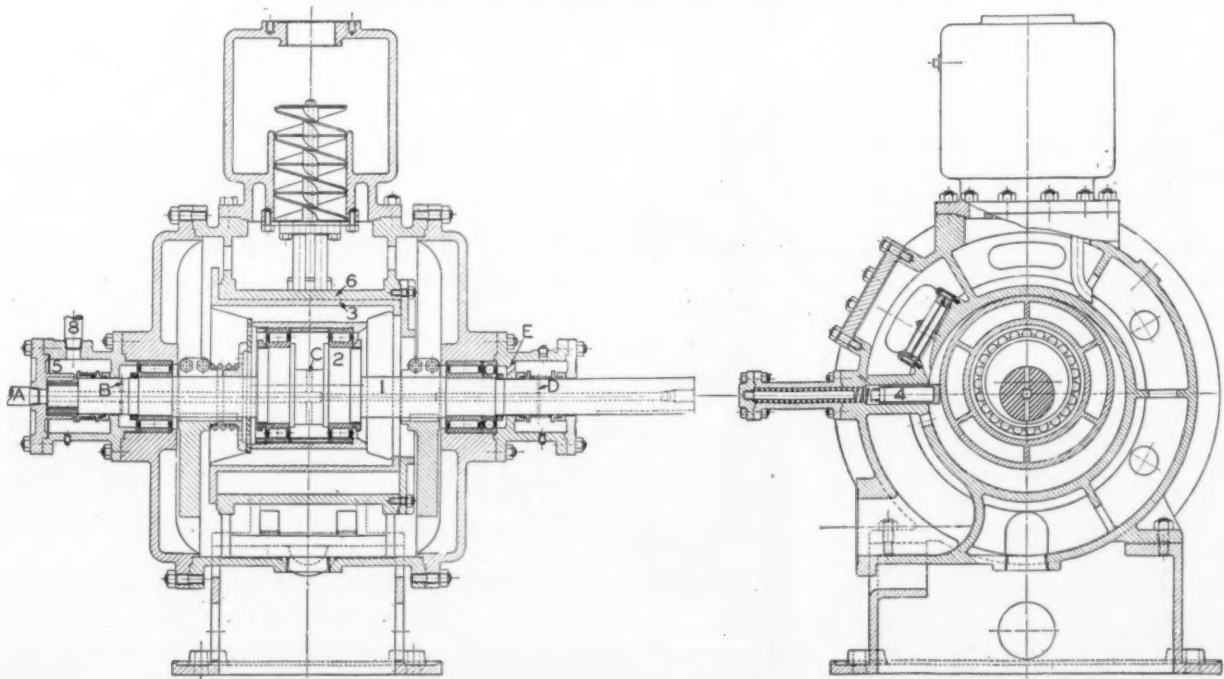


Fig. 18—Sectional side and end views of rotary compressor made by Vilter Mfg. Co.



### Acids-Alkalis-Essential Oils

WE'RE a happy group of urchins. Chemists gave us fancy names, but you find us in the most innocent foods.

Oh Boy! Oh Boy! Do we have fun! Even the baby drinks tomato or orange juice, so mama doesn't believe that we mild essentials can do any harm to the average refrigerator finish.

The grease in butter, fat in bacon, the brine from pickles; they are all harder on a finish than many strong concentrates, so the mama or the maid pay no attention to a little drop or smear here and there, and before they know it, we have eaten through the finish on the refrigerator and then the Rust Boys do the rest. Oh Boy! Oh Boy! How we fool 'em!

#### Note to Dealers and Distributors

HIGH BAKE PORCELOID withstands oils and acids and alkalis. To find out more about this, sign and mail the coupon.

BRADLEY & VROOMAN CO.  
2629 S. Dearborn St.,  
Chicago, Ill.

Please send me information regarding tests that prove HIGH BAKE PORCELOID to be superior to all other Ice or Electric Refrigerator Finishes.

Firm Name .....

Address .....

By .....



## Baltimore Store Will Extend Conditioning System After Trial

BALTIMORE—Schleisner & Co., women's apparel store here, finding that air-conditioning equipment installed in 1934 increased summer trade substantially, have placed an additional order with the York Ice Machinery Co. to equip other floors of the building with air conditioning this year.

In spite of Baltimore's excessive heat and humidity, summer sales increased, Proprietor Schleisner says, and at the same time a decrease was shown in damage costs usually incurred when patrons try on garments in the summer heat.

The second floor of the store was the original air-conditioning experiment. Covering an area 39 ft. wide, 110 ft. long, and 12 ft. high containing a volume of 54,000 cu. ft., it was designed for a load of not more than 50 people. The system produced inside conditions of 82° F. dry bulb and 45 per cent relative humidity, which falls within the American Society of Heating and Ventilating Engineers' "comfort zone," with an effective temperature of 74½° F.

Fifteen tons of refrigeration were the total requirements of the system which were taken care of by two York Freon water-cooled condenser units, each driven by a 7½-hp. motor. These units were connected to York ceiling-type air conditioners with a surface-type dehumidifier, in which a mixture of recirculated and outside air is filtered, dehumidified, and introduced into the room at the proper temperature and moisture content to hold the desired conditions.

The air conditioners handle a total of 5,000 c.f.m. and require 2½ hp. to put this air through the air-distributing system, which consists of a series of galvanized iron ducts and grilles located on either side of the conditioned area with individual outlets to each fitting booth. The purity of the air-circulating system is maintained by the introduction of a complete change of air once every hour.

For the additional equipment which was ordered for the basement and first floor areas, the same inside conditions were maintained. Two York dehumidifiers, similar to the one furnished the previous year, handle a total of 6,000 c.f.m. with motors of 1½ hp. on each fan. The general arrangement of the duct work is similar to the previous installation with the exception that the first floor and basement were supplied with air from a trunk line of duct work extending along the south wall only, discharging the full width of the conditioned spaces.

These latter units were supplied with refrigeration from a 20-hp. York Freon unit. The first floor is approximately 105 ft. long, 40 ft. wide, and 16 ft. high, while the basement area is slightly larger in plan but has a lower ceiling height.

## 4 Corozone Distributors Are Appointed

CLEVELAND—Appointment of four new distributors to handle its equipment has been announced by Corozone Air Conditioning Co. here.

The distributors are: Corozone Air Conditioning Corp., New York City; Avon Corp., Philadelphia; Walter M. Ballard Co., Washington, D. C.; and Smith & Saunders, Inc., Boston.

INFORMAL TALK NUMBER 35



## Cheer! Cheer! . . . For Service Without Headaches

It's easy to sing a song of contentment and joy when your installation and service problems are in the hands of men who know what it's all about. Learn to sing a sweet song. No rehearsal necessary. Just demand that the men you hire be R-A-C-I trained. Get the advantage of their months of preparatory work at home and the practical training given them under actual working conditions in our shops. Write for details of R-A-C-I training, supervised by factory appointed engineers and now officially endorsed and recommended by thirty leading manufacturers. Descriptive booklet sent on request.

The REFRIGERATION AND AIR CONDITIONING INSTITUTE  
2130-2158 LAWRENCE AVENUE • CHICAGO



## List of Users of Air-Conditioning Equipment in Chicago

Name and Address	Equipment and Installed by	Tonnage	Refrig. Hp.
<b>Stores, Clothing, Dept. (Concluded from Page 18, Column 5)</b>			
Gray Garment Co. (Dresses), 337 S. Franklin St.	Columbia Sht. Metal	2	3
Graysons, Inc. (Dresses), 36 S. State St.	Wittenmeier	75	75
H. N. Fried Co. (Dresses), 337 S. Franklin St.	Columbia Sht. Metal	3	5
Jacques, Inc. (Dresses), 545 N. Michigan Ave.	Vilter	20	25
Jerrems Clothing Store, 334 S. Michigan Ave.	Dahl Stedman	0	3½
Mandel Bros. (2 basements), Madison & State Sts.	Carrier	300	105
Morris B. Sachs (Clothes), 653 S. Halsted St.	General Electric	20	25
Neumode Hosiery, 55 East Randolph St.	Frigidaire	3	3½
Neumode Hosiery, 2032 East 71st St.	Westin-Assembled	3½	3½
Neumode Hosiery, 4641 Broadway	Westin-Assembled	3½	3½
Peck & Peck (Sports Wear), 28 S. Michigan Ave.	Carrier-Air Comfort	5	6½
Powell (700 North) (Dress), 700 N. Michigan Ave.	Frigidaire	3	3½
Sally K. Greenbaum (Dress), 530 N. Michigan Ave.	Wendt & Crone	3	3½
Sally K. Greenbaum (Dress), 530 N. Michigan Ave.	Frigidaire	3	3½
Sears Roebuck Co., 63rd & Cottage Grove	Ingersoll-Rand	500	865
Stayform Co. (Fitting Rm.), 17 N. State St.	Ilg	3	3½
The Leader Stores (Dept.), 1700 W. 18th St.	Assembled	0	3
Three Sisters, Inc., 6 South State St.	York	40	46
The Fair, State & Adams Sts.	Witten-E.V. Hill	150	175
Univer. of Chicago (4 Stores), 919 E. 63rd St.	Walker-Jamar	15	17
Weathered, Misses Shop, 950 N. Michigan Ave.	York-Wester. & Camp	15	17
		1,518	1,850½

### Stores, Fur (8)

Andrew Margalit, 180 N. Wabash Ave.	York	5½	5½
Berman, Louis, 333 N. Michigan Ave.	General Electric	3	3½
Evans Fur Co., 162 N. State St.	Carrier	10	12
Garnson, L., 4107 W. Madison St.	Norge-Sampson	2	2
Hoffman & Morton, 180 N. State St.	Copeland	2	2
Maurice Silvey Fur Co., 3326 W. Madison St.	Ilg	1	1
Mandel Bros. (Fur Dept.), 514 State St.	Gen. Refrig. Sales	10	11
Walzer, H. & Co., 215 N. Michigan Ave.	Copeland	1	1½
		31½	35

### Stores, Shoes (15)

Burt's Shoe Store, 6338 S. Halsted St.	General Electric	7½	8½
Burt's Shoe Store, 42 S. State St.	Vilter	20	23
Feitman Curme, 134 N. State St.	York	7½	8½
Florsheim Shoe, 41 N. Wabash Ave.	Carrier	5	5½
Florsheim Shoe, 1 N. LaSalle St.	Carrier	5	5½
Florsheim Shoe, 1 N. Dearborn St.	Carrier	3	3
Florsheim Shoe, 32 E. Jackson St.	Carrier	3	3
French, Shriner & Urner, 14 S. Dearborn St.	Westing. -Kroeschell	2	1½
Hassels Shoe Store, 101 W. Madison St.	General Electric	8	9
Maling Bros. Shoes, 231 S. State St.	Trane	10	10
Maling Bros. Shoes, 34 S. State St.	Wittenmeier (See Grayson, Dress)	10	10
O'Connor & Goldberg, 4616 Sheridan Rd.	Carrier-Air Comfort	10	10
O'Connor & Goldberg, 2445 Milwaukee Ave.	Carrier-Air Comfort	8	7½
Scholl's, Dr., 21 N. Wabash Ave.	Frigidaire	4	4½
Wolock & Bauer, 4 N. Michigan Ave.	Amer. Carbonic	20	30
		111	129

### Stores, Food (7)

A. & P., Howard St.	Carrier	10	11½
A. & P., 549 Diversey Ave.	Carrier	3½	4½
Fulton Market, 904 Fulton St.	York	1	1½
Hillman's, 24 W. Washington St.	Bruno-Kroeschell	175	365
Kosyath's Market, 3932 Lincoln St.	Copeland	1	1½
Schwefel's Bakery, 2962 N. Clark St.	Frigidaire	1	1½
Stop & Shop, 24 W. Washington St.	Bruno-Kroeschell	191½	385½

### Stores, Miscellaneous (16)

Electric Shop, 72 W. Adams St.	Bruno-Kroeschell	160	212
Hielpner Tailor Shop, 310 S. Michigan Ave.	York-Sampson	3	3
Kenwood Mills, Inc., 550 N. Michigan Ave.	Frigidaire	3	3
Kenwood Mills (Woolens), 550 N. Michigan Ave.	Frigidaire	1	1½
Krege Store, 26 S. State St.	Carrier	80	85
Krege Store, 6300 S. Halsted St.	Carrier	80	85
Lois Jewelry Store, 32 N. State St.	Carrier-Air Comfort	15	18
Mandel Bros. (Model Home), State St. (8th Fl.)	Frigidaire	5	5
Marshall Field (Beauty Gds.), Randolph & Wabash	Frigidaire	1	1½
Marshall Field (Candy Dept.), Randolph & Wabash	Frigidaire	1	1½
McCauley, Fred (Stationery), 19 S. Halsted St.	General Electric	½	½
One Building with 5 Stores, 1055 Bryn Mawr Ave.	York-Advance Heat.	30	36½
Philo show Room, 643 N. Michigan Ave.	Ilg	3	3½
Rembrandt Lamp Co., 666 Lake Shore Dr.	Norge-Sampson	25	28
Walter Powers Building, 4016 W. Madison St.	Midwest-Kaiser	45	52
Wittbold Flower Shop, 631 N. Michigan Ave.	Frigidaire	3	3½
Woolworth's, 18 North State St.	Carrier	350	440
W. T. Grant, 100 South State St.	York-Mehr. & Hans.	125	165
		928½	1,142

### Studios (5)

N.B.C. (and General Offices), Merchandise Mart	Carrier	250	346
N.B.C., Merchandise Mart	Kroeschell	45	51
W.B.E.M. (Daily Times), Wrigley Building	Carrier	10	9
W.B.E.M. (Studios 5, 6, 8), Wrigley Building	General Electric	10	12
W.G.E.S. Radio Studios, 128 N. Crawford Ave.	Frigidaire	1½	1½
		316½	419½

### Undertakers (21)

Ahren, Thos. J., 3246 Jackson Blvd.	Ilg-Advance Heating	7	9
Arthur Ahlgrin & Son, 5701 W. Division St.	U.S. Air Conditioning	0	5
Barney Green Sons, 1723 N. Larrabee St.	York	1	1½
Carlson, N. G., 304 W. 119th St.	Ilg-Harper Barce	10	12
Corcoran, Thomas E., 1506 E. 67th St.	Walker Jamar	15	17
Furth Funeral Home, 365 E. 47th St.	York	20	21
Kamp & Son, 318 N. Central Ave.	U.S. Air Conditioning	0	8
Ketcham, Frank H., 5522 S. Halsted St.	Bryant-Wendt, Crone	0	3
Kelly, C. S., 6915 Wentworth Ave.	Frigidaire	0	5
Kenny & Son, 5438 S. Halsted St.	U.S. Air Conditioning	0	5
Kruse, John C., 2130 W. 21st St.	U.S. Air Conditioning	0	2
Lain & Son, 316 W. 63rd St.	N.Y. Blower-Frick	25	40½
O'Keefe, James, 4245 W. Madison St.	General Electric	5	6½
Pedersen, John M., 4348 Fullerton	Fairbanks-York	7½	9
Peterson Bros., 5531 W. Chicago Ave.	Kroeschell	15	17½
Peters Chapel, 5206 Broadway	Midwest	15	17
Schroeder-Thompson, 6115 S. Ashland Ave.	Hilger	5	5½
Sheehy Chapel, 7653 S. Halsted St.	Stand. Air Condition.	0	2
Sullivan, E. J., 245 W. North Ave.	Kroeschell	11	12½
Weinstein Bros., 3806 W. Roosevelt Rd.	U.S. Air Conditioning	0	5
Wojciechowski, John, 2127 W. Webster Ave.	Chrysler-Fairbanks	15	18
		149	211½

### Theaters (Electric Refrigeration) (94)

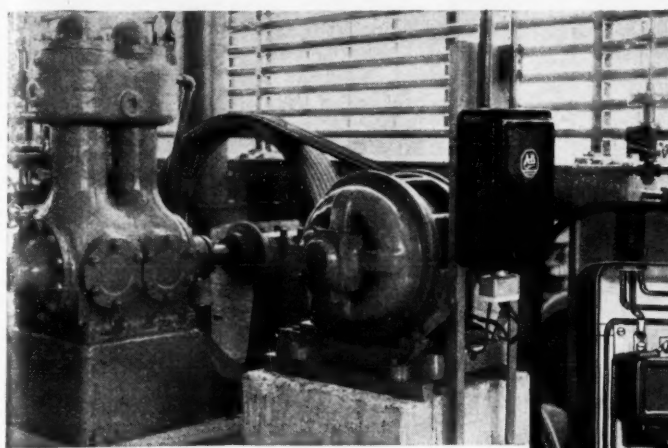
Alamo Theater (Vogue), 3635 W. Chicago Ave.	Wittenmeier	80	100
Alba Theater, 4516 N. Kedzie Ave.	Kroeschell	75	75
American Theater (S & S), 2430 Lincoln Ave.	Wittenmeier	75	75
Apollo (B & K), 74 W. Randolph St.	Kroeschell	75	75
Argmore (S & S), 1040 Argyle St.	Wittenmeier	35	50
Armitage Theater, 3553 W. Armitage Ave.	General Electric	40	43
Astor Theater, 12 South Clark St.	Frigidaire	18	20
Avalon Theater, 1645 East 79th St.	Carrier	250	358
Belmont Theater, 1617 Belmont Ave.	Amer.-Carbonic	200	415
Belpark Theater, 3221 N. Cicero Ave.	Wittenmeier	125	222
Beverly Theater, 1559 West 95th St.	Mellish-Murray	80	102
Biltmore Theater, 2046 West Division St.	Kroeschell	75	75
Biograph (S & S), 2430 Lincoln Ave.	Wittenmeier	40	75
Buckingham Theater, 3319 North Clark St.	Vilter	60	85
Buckingham Theater, 3319 North Clark St.	Wittenmeier	60	70
Byrd Theater, 4730 West Madison St.	Wittenmeier	90	155
Calo Theater, 5404 North Clark St.	General Electric	80	80
Central Park Theater, 3531 West Roosevelt Rd.	Carrier	250	321
Century Theater, 2820 North Clark St.	Wittenmeier	100	190
Chicago Theater, 171 North State St.	Bruno-Kroeschell	200	357
Chicago Civic Opera, 20 North Wacker Dr.	Bruno-Kroeschell	375	675
Civic Theater, 20 North Wacker Dr.	Amer.-Carbonic	308	590
Colony Theater, 3206 West 59th St.	Amer.-Carbonic	140	220
Commercial (B & K), 9201 Commercial Ave.	Amer. Refrig.	90	100
Congress Theater, 2135 Milwaukee Ave.	Amer.-Carbonic	240	362
Avon Theater, 3327 Fullerton Ave.	Wittenmeier	50	60
Covent (B & K), 2553 North Clark St.	Wittenmeier	90	100
Crawford (S & S), 19 South Crawford Ave.	Wittenmeier	70	75
Crown (S & S), 1607 West Division St.	Wittenmeier	75	100
Crystal (B & K), 2705 West North Ave.	Wittenmeier	90	100
Davis Theater, 1215 North Lincoln St.	Davis	125	125
Devon Theater, 6225 Broadway	Wittenmeier	60	75
Embassy Theater, 3940 Fullerton Ave.	Wittenmeier	100	185
Erlanger Theater, 127 North Clark St.	Wittenmeier	80	160
Gateway Theater, 5218 Lawrence Ave.	Bruno-Kroeschell	100	204

Name and Address	Equipment and Installed by	Tonnage	Refrig. Hp.
Garrick (B & K), 64 W. Randolph St.	Kroeschell	100	100
Granada Theater, 6427 Sheridan Rd.	Amer.-Carbonic	240	420
Grand Opera House, 121 N. Clark St.	Carrier	80	145
Grove Theater, 7620 Cottage Grove Ave.	Assembled	200	245
Harding Theater, 2722 Milwaukee Ave.	Amer.-Carbonic	240	337
Highland Theater, 7559 S. Ashland Ave.		210	280
Howard Theater, 1621 Howard St.	Vilter	90	85
Illington Theater, 2116 West 22nd St.	Wittenmeier	75	80
Irving Theater, 4003 Irving Park Blvd.	Wittenmeier	100	115
Keystone Theater, 3912 Sheridan Rd.	Wittenmeier	50	60
Lakeside Theater, 4730 N. Sheridan Rd.	Kroeschell	75	75
Logan Theater, 2645 Milwaukee Ave.	General Electric	50	70
Manor (B & K), 5607 West North Ave.	Wittenmeier	90	100
Marland Theater, 853 East 63rd St.	Wittenmeier	100	170
Marbo Theater, 4112 W. Madison St.	Wittenmeier	300	400
Marshall Square Theater, 2205 Marshall Blvd.	Wittenmeier	96	132
McVickers Theater, 25 W. Madison St.	Kroeschell-E. V. Hill	150	399
Michigan Theater, 110 E. Garfield Blvd.	Wittenmeier	100	150
Montclair Theater, 7133 W. Grand Ave.	General Electric	80	80
New Theater, 5620 Belmont Ave.		100	137
N. Center Theater, 4047 Lincoln Ave.	Bruno-Kroeschell	150	345
North Shore Theater, 1749 Howard St.	Amer.-Carbonic	200	367
Nortown Theater, 6322 N. Western Ave.	Bruno-Kroeschell	100	210
Oak Theater, 2004 N. Western Ave.	General Electric	40	41½
Olympia Theater, 4619 S. Ashland Ave.	General Electric	30	40
Oriental Theater, 20 W. Randolph St.	Bruno-Kroeschell	250	584
Pantheon Theater, 4642 Sheridan Rd.	Bruno-Kroeschell	100	260
Parkway Theater, 2738 N. Clark St.	General Electric	20	25
Paradise Theater, 231 N. Crawford Ave.	Carrier	250	462
Parkway Theater, 11053 S. Michigan Ave.	Westing.-Kroeschell	50	50
Palace Theater, 161 W. Randolph St.	Wittenmeier	250	340
Piccadilly Theater, 5105 Blackstone Ave.	Amer.-Carbonic	300	400
Portage Park Theater, 4050 Milwaukee Ave.	General Electric	80	80
Regal Theater, 4701 South Parkway	Bruno-Kroeschell	175	292
Riviera Orpheum, 4746 Broadway	Wittenmeier	100	162
Roosevelt, 110 North State St.	Bruno-Kroeschell	100	187
Roseland Theater, 11331 S. Michigan Ave.	York	50	50
Rosewood Theater, 1823 Montross Ave.	Wittenmeier	75	40
Senate Theater, 3123 W. Madison St.	Amer.-Carbonic	175	442
Sheridan Theater, 4038 Sheridan Rd.	Amer.-Carbonic	150	350
Shore Theater, 2507 East 75th St.		125	145
Southtown, 632 West 63rd St.	Wittenmeier	250	376
Star & Garter, 815 West Madison St.	Frigidaire	30	30
State Theater, 11018 S. Michigan Ave.	York-Wester & Camp	100	100
State & Harrison, 546 South State St.	Assembled	10	10
State-Lake, 180 North State St.	Bruno-Kroeschell	200	428
State, 5814 West Madison St.	Bruno-Kroeschell	150	250
Terminal, 3315 Lawrence Ave.		150	185
The 400 Theater (S & S), 6748 Sheridan Rd.	Wittenmeier	40	50
Tiffin, 4045 West North Ave.	Vilter	150	165
Tivoli, 6323 Cottage Grove Ave.	Automatic Carbon	125	311
Tower, 1512 East 63rd St.	Bruno-Kroeschell	250	420
United Artists, 45 West Randolph St.	Bruno-Kroeschell	150	322
Uptown, 4814 Broadway	Bruno-Kroeschell	400	553
Vogue Theater, 3810 Broadway	Wittenmeier	125	142
West End, 121 North Cicero Ave.	Wittenmeier	70	100
Windsor, 1225 North Clark St.	Wittenmeier	65	75
Woods, 54 West Randolph St.	Bruno-Kroeschell	75	115
		11,457	18,028

### Theaters (Water-Washed Air) (44)

Academy, Madison & Halsted	U.S. Air Conditioning	0	5
*Acadia, 2739 West 55th St.	U.S. Air Conditioning	0	20
*Adelphi, 7074 North Clark St.	Western Trane	0	15
*Alex Schmidt, 456 West 119th St.	U.S. Air Conditioning	0	17½
*Austin, 5619 West Madison St.	Kaiser Co.	0	4
*Banner, 1611 North Damen Ave.	U.S. Air Conditioning	0	20
*Bertha, 4717 Lincoln Ave.	U.S. Air Conditioning	0	20
*Bryn Mawr Theater, 1125 Bryn Mawr Ave.	Stand. Air Conditioning	0	15
*California, 3434 West 26th St.	U.S. Air Conditioning	0	20
*Cheltenham, 7945 Exchange Ave.	U.S. Air Conditioning	0	27½
Century, 1421 West Madison St.	U.S. Air Conditioning	0	20
Cinema, 121 East Chicago Ave.	U.S. Air Conditioning	0	12½
*Clark, 11 North Clark St.	U.S. Air Conditioning	0	20
Commodore, 3105 Irving Park Blvd.	U.S. Air Conditioning	0	20
*DeLuxe, 1141 Wilson Ave.	U.S. Air Conditioning	0	12½
*Drexel, 858 East 63rd St.	U.S. Air Conditioning	0	15
*Gold, 3411 West Roosevelt Rd.	U.S.		
*Highway, 6329 South Western Ave.	U.S. Air Conditioning	0	15
Hub, 1746 West Chicago Ave.	U.S. Air Conditioning	0	15
*Hyde Park, 5312 Lake Park Ave.	U.S. Air Conditioning	0	15
*Karlson Theater, 407 West Armitage Ave.	U.S. Air Conditioning	0	15
*Kimbar, 6240 Kimbar Ave.	U.S. Air Conditioning	0	15
Lake Shore, 3175 Broadway	U.S. Air Conditioning	0	15
*Lane Court, 322 Center St.	U.S. Air Conditioning	0	15
*Lexington, 715 South Crawford Ave.	U.S. Air Conditioning	0	15
*Liberty, 3705 Fullerton Ave.	U.S. Air Conditioning	0	15
*Lincoln, 3164 Lincoln Ave.	U.S. Air Conditioning	0	15
Linden, 743 West 63rd St.	U.S. Air Conditioning	0	15
*Lindy, 3437 Ogden Ave.	U.S. Air Conditioning	0	15
Madlin, 1910 West Madison St.	U.S. Air Conditioning	0	15
*Marquette, 3157 West 63rd St.	U.S. Air Conditioning	0	15
*Midway Theater, 6246 Cottage Grove Ave.	U.S. Air Conditioning	0	15
Milo, 1821 Loomis St.	U.S. Air Conditioning	0	15
*Music Box, 3729 Southport Ave.	U.S. Air Conditioning	0	15
*Oakley, 3230 North Chicago Ave.	U.S. Air Conditioning	0	15
*Owl, 4653 South State St.	U.S. Air Conditioning	0	15
*Paulina, 1339 North Paulina St.	U.S. Air Conditioning	0	15
Ray, 2638 East 75th St.	U.S. Air Conditioning	0	15
*Ridge, 1550 Devon Ave.	U.S. Air Conditioning	0	15
*Rivoli, 4380 Elston Ave.	U.S. Air Conditioning	0	15
*Royal, 1453 Milwaukee Ave.	U.S. Air Conditioning	0	15
*20th Century, 3539 Roosevelt Rd.	U.S. Air Conditioning	0	15
*White Palace, 1615 South Kedzie Ave.	U.S. Air Conditioning	0	15
*Winta Theater, 2916 Milwaukee Ave.	U.S. Air Conditioning	0	15





Note the white cabinet interior and accessibility of wiring on this Bulletin 709 Starter.

## Easy to Install Easy to Inspect

—no more contact dressing with  
**ALLEN-BRADLEY solenoid motor starters**

You save time and trouble when you install Allen-Bradley solenoid starters on your machines. Their twelve knockouts on back and sides, ample wiring space, and white interiors make installation easy. Once installed, the only maintenance these starters require is an occasional inspection. Never file or "dress" these double-break silver-alloy contacts. They require no maintenance.

Allen-Bradley solenoid starters are very compact. Due to their high magnetic efficiency, drop-out voltages are unusually low, and the starter will operate reliably even under poor line voltage conditions.

Allen-Bradley offers a complete line of maintenance-free motor control for refrigerating and air-conditioning service. They can be mounted without enclosing cabinets directly to metal panels or can be furnished in any of seven types of enclosing cabinets.

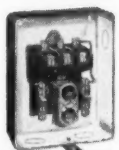
Write for bulletins today



Allen-Bradley Company  
1313 S. First St.  
Milwaukee, Wis.

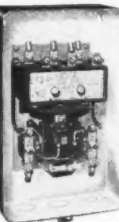
### Bulletin 609

A manual starter with overload relays. Available in sizes to 5 H. P., 220 V.; 7½ H. P., 440-550 V.



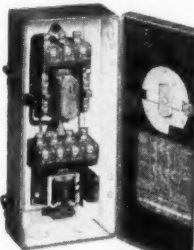
### Bulletin 709

A compact automatic solenoid starter providing remote control and no-voltage protection. Max. ratings: 30 H. P., 220 V.; 50 H. P., 440-550 V.



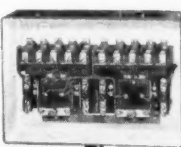
### Bulletin 712

A combination automatic starter and disconnect switch, in ratings to 50 H. P., 440-550 V.



### Bulletin 715

An automatic multi-speed starter for compressor motors. Max. rating: 30 H. P., 220 V.; 50 H. P., 440-550 V.



## ALLEN-BRADLEY SOLENOID-TYPE MOTOR STARTERS

## Reduced Margin of Profit Will Boost Refrigerator Sales

CAMDEN, N. J.—Because manufacturers have reduced their margin of profit, refrigerator sales should increase considerably this year, W. G. Peirce of Peirce-Phelps, Inc., Philadelphia, said here Jan. 23 at a dinner meeting of the Electrical League of South Jersey. The reduction in price of 1936 models, Mr. Peirce said, has been brought about through co-ordination of engineering, production, and sales costs. Because of the reduced prices, the opportunity of retail price cutting has been eliminated, he added. Camden banks have made loans totaling \$500,000 under the Federal Housing Act for the purchase of electrical appliances, league members were told by Charles B. Crabel of the West Jersey Trust Co. Mr. Crabel said a survey of payments under the FHA plan showed less delinquency than under the old system of installment payments.

Officers of the association for this year are: President, Frank S. Horning; vice president, Carl B. Rudderow; secretary, Howard K. Suckling; and treasurer, Wilbur R. Peters.

## Added Features to Cut Gift Deals, Buyer Says

DENVER—Inclusion by certain leading refrigerator manufacturers of complete food division features in their 1936 models will have an important effect in doing away with competitive gift deals, in the opinion of O. P. Jones, buyer for the major appliance department of American Furniture Co. here.

"For several years, free compartments of various kinds have been made a 'football,'" says Jones. "One dealer would offer to throw in one item and the next would come along with it and something else. The third dealer would have to at least meet those offers and possibly add something else. This condition led to a lack of appreciation for the value of these articles."

"The 1936 arrangement should also help reduce follow-up expense for the dealer and eliminate a source of dissatisfaction. In past years, when a customer put her vegetables in the wrong part of the refrigerator and froze them, the dealer got a call and had to spend a lot of time explaining all over again, where different food products should be placed. Now, with the box properly divided off, the customer can't make a mistake."

## Oklahoma Utility Opens Refrigeration Drive

OKLAHOMA CITY — Regarding electric refrigerators as important load builders, as well as an initial step toward an all-electric kitchen, Oklahoma Gas & Electric Co. has opened a vigorous campaign for 1936 refrigerator sales.

Part of its program includes electric refrigeration shows, to be staged during March in Oklahoma City, Shawnee, Muskogee, Enid, Sapulpa, Ardmore, and Durant. Institutional advertising in newspapers and a billboard campaign will be supplemented by quarter-hour radio programs from stations in Oklahoma City, Enid, Shawnee, Ardmore, Ada, and Tulsa two to four times a week.

The utility, says Charles M. Huey, head of the sales development department, will attempt to surpass the 1935 record of a 20 per cent gain in sales over the preceding year in towns served by the company.

## Second Kitchen Coach Used By Georgia Power

ATLANTA — A second traveling kitchen coach, under the direction of Mr. and Mrs. Armstrong Hunt, has been added by Georgia Power Co. to its equipment for demonstrating electric homemaking to women in small towns and rural areas of Georgia. Mr. and Mrs. Hunt will conduct homemaking lectures and demonstrations similar to those started last April by Mr. and Mrs. Guy Lynes, operator of Georgia Power's original kitchen coach.

## G-E Co. Orders for 1935 Show 18% Over '34

SCHENECTADY — Orders received by the General Electric Co. during the year 1935 amounted to \$217,361,587, compared with \$183,660,303 during 1934, an increase of 18 per cent, President Gerard Swope reported last week.

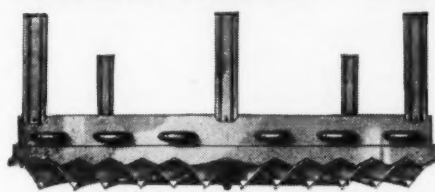
Orders for the quarter ended Dec. 31 amounted to \$58,417,822, compared with \$51,046,760 for the last quarter of 1934, an increase of 14 per cent.

Sales billed and earnings for the year 1935 are not yet available.

## The Buyer's Guide

Suppliers Specializing in Service to the  
Refrigeration and Air Conditioning Industries

## PEERLESS FLASH COOLER



The NEW Eye Appealing  
Method of Cooling Walk-  
In Refrigerators

STYLE & RESULTS

Fin Coil and Drip Pans Engineered in an Integral  
Unit—Saves Installation Cost and Operating Cost

**PEERLESS ICE MACHINE CO.**

CHICAGO TWO FACTORIES NEW YORK  
515 W. 35th St. 43-00 36th St., L.I.C.

## REFRIGERATOR CABINETS

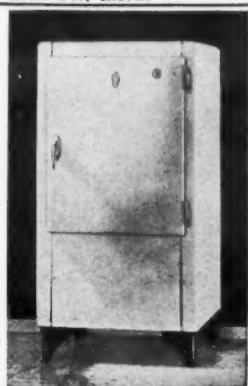
4 to 14 Cu. Ft. Models in Stock

Also Specials for that Hard-to-Fit Location  
and For Apartments

Custom-Built at Production Prices

**HEINZ & MUNSCHAUER, Buffalo, N.Y.**

Makers of Quality Refrigerators Since 1865



## COILS BY REMPE . . .

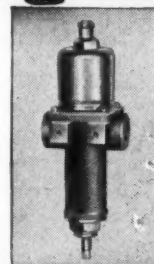
. . . (of unsurpassed quality) . . . that assure efficient, uninterrupted service for years . . . that are ideal for heating, for cooling, and for air conditioning units. Any type of extended surface coils made with Aluminum, Copper and Steel Fins on Copper and Steel Tubing . . . Expansion Valves . . . Pipe Bends and Pipe Coils.

Write for complete information and New Catalogue

## REMPE "FIN COIL" COMPANY

340 North Sacramento Blvd. Chicago, Illinois

## STANDARD REFRIGERATING APPLIANCES



## PRESSURE CONTROL WATER REGULATING VALVE

Write for bulletin on complete line covering refrigerating appliances, liquid line filters, dehydrators, acid neutralizers, standard parts and materials, service tools, shaft seals, bearing metals and parts. Descriptive literature will be gladly furnished on any or all of these lines on request.

## AMERICAN INJECTOR COMPANY

1481-14th. Street, Detroit, Mich.

## KRAMER UNIT COOLERS Manifolded for FREON

Designed with maximum Fin Coil Surface and minimum air flow (CFM) per square foot of surface to permit operation at high evaporator temperature for minimum dehydration effect, and maximum capacity for Condensing Unit.

### TRENTON AUTO RADIATOR WORKS

210-212 West 65th St. TRENTON 5114 Liberty Ave.  
New York City New Jersey Pittsburgh, Pa.



Units especially designed for FREON are manifolded and provided with drier coil.

Send for Literature Description—Prices

## TYPE KR-12 Models RANCOSTAT

There's no breakage—no prying or wedging of misfit thermostats—when replacements are made with Rancostat. It fits to perfection. Simply pull out the old thermostat—slip a Rancostat in its place—and you are quickly on your way. Service men like the Rancostat—and refrigerator users like it because it's built for consistent accuracy and permanence.

The  
Stainless  
Steel  
Thermostat

The Automatic Reclosing  
Circuit Breaker Co.  
Columbus, Ohio

## Refrigeration Instruments by Marsh



**Jas. P. Marsh Corporation**  
2067 SOUTHPORT AVE., CHICAGO, ILL.

## THE ANSUL TWINS



## REFRIGERATION'S LEADING BROTHER ACT

Let Ansul Sulphur Dioxide and Ansul Methyl Chloride show you how they perform. They're guaranteed to please for every cylinder is given an individual analysis before it leaves the plant.

**ANSUL CHEMICAL COMPANY**  
MARINETTE . . . . . WISCONSIN



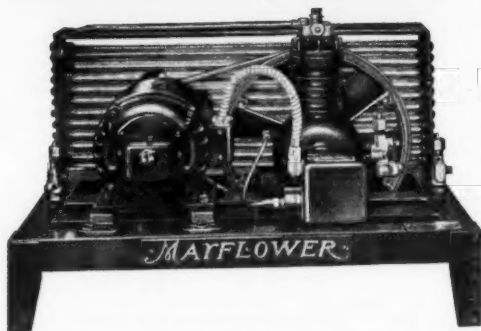
# The Buyer's Guide

Suppliers Specializing in Service to the Refrigeration and Air Conditioning Industries

## HARDY "Mayflower" Commercial Compressors

are products  
of established Value

Reliably recommended  
for your particular needs.  
1/4 to 2 H. P.



HARDY MANUFACTURING CO., Inc., 100 Davis Ave., Dayton, Ohio

## CONDENSING UNITS AND COMPRESSORS FOR HOUSEHOLD REFRIGERATION

BY  
**JOMOCO, INC.**

A SUBSIDIARY OF THE  
**JOHNSON MOTOR CO.**  
Waukegan, Ill.

CABLE ADDRESS: JOMOCO-WAUKEGAN



## "CHIEFTAIN" QUALITY-BUILT COMPRESSORS and CONDENSING UNITS

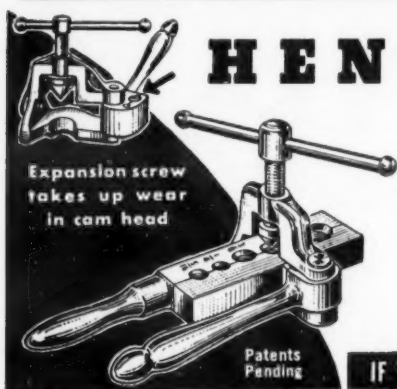
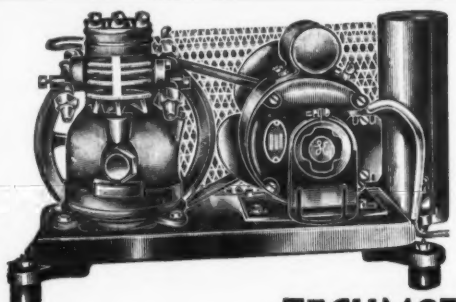
All bearings diamond bored. Positive  
lubrication of piston by newly de-  
veloped process plus forced feed  
lubrication in all models.

Sizes: 1/6, 1/5, 1/4, 1/3 h.p.

Write for prices

**TECUMSEH PRODUCTS CO.**

Tecumseh, Mich.



## HENRY FLARING TOOL

The flaring tool that is the fastest and  
easiest to operate! Sturdy and lasts  
longer. Adjustable cam lever locks  
the tube in place in carbonized  
clamping blocks. Greatest locking  
pressure is always exerted directly  
opposite the tube. For 1/4", 5/16",  
3/8" 1/2" and 5/8" tubing. Each, \$4.55.

**HENRY VALVE CO.**

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IF YOUR JOBBER CAN'T SUPPLY YOU, ORDER DIRECT

THE REFRIGERATION LIBRARY—VOL. 3

## MASTER SERVICE MANUAL

WHAT TO DO and HOW TO DO IT  
for all types of household systems  
By E. M. NEWCOMB

BUSINESS NEWS PUBLISHING CO.  
PUBLISHERS OF  
ELECTRIC REFRIGERATION NEWS

The Master Service Manual (\$3.00 per copy) in-  
cludes the necessary in-  
structions for servicing  
all the fundamental types  
of household systems.  
Detailed instructions for  
the servicing of more  
than a dozen "orphan  
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Off the press this month.

The Refrigeration and Air  
Conditioning Specifications  
Book (\$3.00 per copy) will  
contain detailed compar-  
ative data which every  
dealer, salesman, and  
service man has been  
wanting. To be published  
March 1, 1936.

Combination Price for  
Both Books, \$5.00

THE REFRIGERATION LIBRARY—VOLUME 4

## REFRIGERATION and Air Conditioning SPECIFICATIONS

For ALL MODELS and MAKES  
HOUSEHOLD and COMMERCIAL  
Including New Designs for 1936

BUSINESS NEWS PUBLISHING CO.  
PUBLISHERS OF  
ELECTRIC REFRIGERATION NEWS

## PURO ELECTRIC WATER COOLERS

Thoroughly reinforced all steel attractively  
finished cabinets.

Different models of varying capacities.

Write for details and sales prices.

Puro Filter Corporation of America

440 Lafayette Street, New York City

Spring 7-1800



## INEXPENSIVE FOOD DISPLAYS

Nothing adds to the eye appeal and shows up the contents  
of your refrigerator as much as a set of these artificial foods.  
Really realistic and durable. Sets for all make refrigerators.  
Prices from \$3.00 to \$6.00. Write your source of refrigerator  
supply or direct to

**CINCINNATI DOLL COMPANY**  
311-313 East Twelfth Street  
CINCINNATI, OHIO

## Gibson to Continue Using Freez'r Shelf in SD & CB Models

(Concluded from Page 1, Column 4)

the CB models, Gibson claims, makes possible a greater and more scientific distribution of storage space. The 6-cu. ft. model has more than 12 sq. ft. of shelf area, while the 7-cu. ft. model has a shelf space exceeding 15 sq. ft.

Gibson, of course, continues to feature the Freez'r Shelf, approved by Good Housekeeping, in its 1936 advertising and promotional work, hailing it as "the greatest single improvement since a compressor replaced the cake of ice."

The feature is claimed not only to leave a larger available storage space, but also to provide a larger ice-cube capacity, and to make for faster freezing and quicker cooling without drying out the contents of the storage compartment, due to the slower circulation of air which can cool the food in a shorter time because a larger evaporator coil area is provided to carry away the heat units.

Cabinet hinges, latches, and appointments are of the heavy-edge mounted type, which requires no weakening cut-outs in the frame or door, and which, being mounted entirely on the outside, will not conduct heat to the interior or cause sweating on humid days. All appointments are finished in chrome, and add a modern touch to harmonize with the smart lines of the cabinets.

Insulation is of Balsam Wool, with an extra heavy thickness on the door. All insulation is covered with heavy Kraft and Hydrolene paper, sealed to make it moisture-proof, and to reduce heat leakage to a minimum.

A new feature of this year's units in the Gibson Guardian, a hot-wire type of relay, externally mounted, which furnishes an automatic overload protection for the motor, opening the motor circuit if the current becomes greater than normal, and reclosing it after a short interval.

Another feature is the fact that, when the temperature control is placed in the defrosting position, the unit will continue to operate sufficiently to maintain a safe cabinet temperature while the ice melts from the evaporator coil. In this way, even if the control is forgotten, no food spoilage results.

All models in the 1936 Gibson line have the hermetically sealed Gibson "Monounit," which the company has been employing for the past several years.

## Universal Cooler Will Feature Economy of Down-Draft Cooling

(Concluded from Page 1, Column 2)

capacity of 54 cubes, or 3.3 lbs. of ice per freezing.

Model UC-6, or the "6 Plus," has a capacity of 6.31 cu. ft., and a usable shelf area of 13 sq. ft. Ice-cube capacity of this model is 84 cubes or 6 lbs. of ice per freezing.

Largest model in the line, the UC-8 or "8 Plus," has a capacity of 8.04 cu. ft. and a shelf area of 15.4 sq. ft. This model produces 140 ice cubes, or 10 lbs. of ice at a freezing.

All models employ a recent Universal Cooler origination, down-draft "double" cooling. With this new feature, there is no visible accumulation of frost on the cooler, effective surface of which has been more than doubled in this year's units. A separate circulation is set up along two sides of the cooler, the heat being taken up by cooling plates which have a temperature of 36° F. This is said to prevent drying out of crisp foods, such as lettuce and onions, and to leave other foods in as nearly a natural state as possible.

The down-draft cooling, another new feature, is said to provide uniform temperatures as nearly as possible throughout the whole cabinet interior.

Exterior finish on all models is DuPont Dulux, with acid-resisting porcelain on Armco iron interiors. A new non-spill, mesh shelving is standard on all units.

In addition to a rubber ice cube tray in the 6- and 8-cu. ft. models, the units have new cocktail trays for greater flexibility and convenience—two in the 6-cu. ft. model, and four in the 8-cu. ft. unit. The 6-cu. ft. model has one large freezer shelf, for below-freezing storage of game and aging meats; the 8-cu. ft. model has two such shelves. All three models have at least two shelves for fast ice-cube and dessert freezing.

The new Universal Cooler units are powered with the full-floating condensing units which the company manufactures, and which are standard equipment on a number of other refrigerator lines.

Base of the cabinets is of distinctive design, finished in black, with openings at the front and rear to allow for sweeping beneath.

## Specifications of New Refrigerators

Norge (See Picture on Page 9)

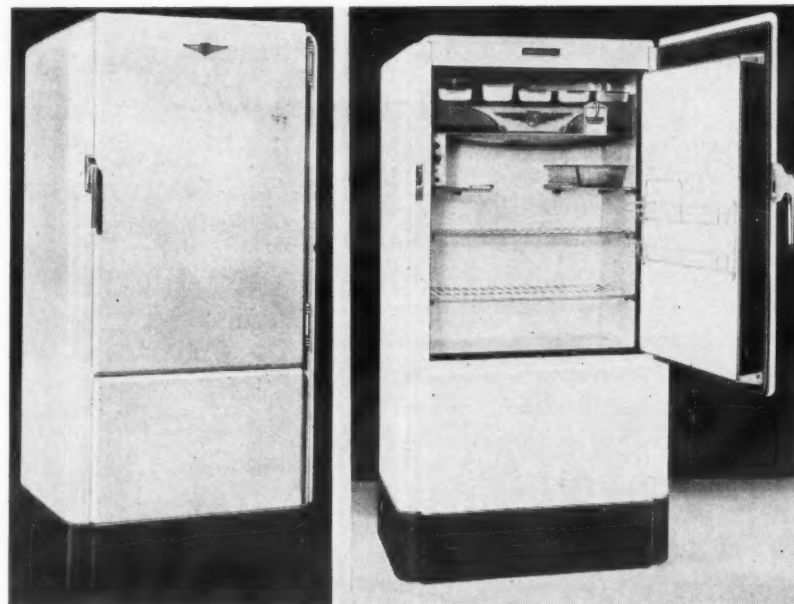
Model No.	Storage Capacity Cu. Ft.	Shelf Area Sq. Ft.	No. Trays	No. of Cubes	Lbs. of Ice	—Exterior Dimensions—		
						Height	Width	Depth
T-20-6	2.00	5.25	2	36	2 1/2	36	22 1/2	19 1/2
S-31-6	3.10	7.00	2	42	4 1/2	35 1/2	24	21 1/2
E-32-6	3.25	8.05	2	42	4 1/2	48	24 1/2	20 1/2
E-42-6	4.25	8.50	2	42	4 1/2	52 1/2	24 1/2	21 1/2
L-42-6 (P-42-6)	4.25	8.46	2	48	4 1/2	52 1/2	27 1/2	22 1/2
L-52-6 (P-52-6)	5.22	10.01	3	72	7 1/2	55 1/2	28	24 1/2
L-62-6 (P-62-6)	6.22	12.62	3	96	9 1/2	57 1/2	30	24 1/2
L-72-6 (P-72-6)	7.25	13.36	3	96	9 1/2	59 1/2	32 1/2	24 1/2
L-82-6 (P-82-6)	8.25	15.56	4	120	12 1/2	62	35	24 1/2

"L" models have Norgloss exterior; "P" models have porcelain exterior. All interiors are finished in porcelain. First four models are available in Norgloss exterior only. All models have defrosting tray; all except the T-20 have interior electric light. Models from E-42-6 upwards have the Norge Hydrovoir, and the four largest units have adjustable shelf;

all L and P models have sliding utility basket.

Models 42-6 and 52-6 have bottle rack; models 62-6, 72-6, and 82-6 have combination racks. Model 42-6 also has an insert shelf. Models P-52-6 and P-62-6 are also available in the following color selections: green, peach, and tan, in addition to white.

## Gibson

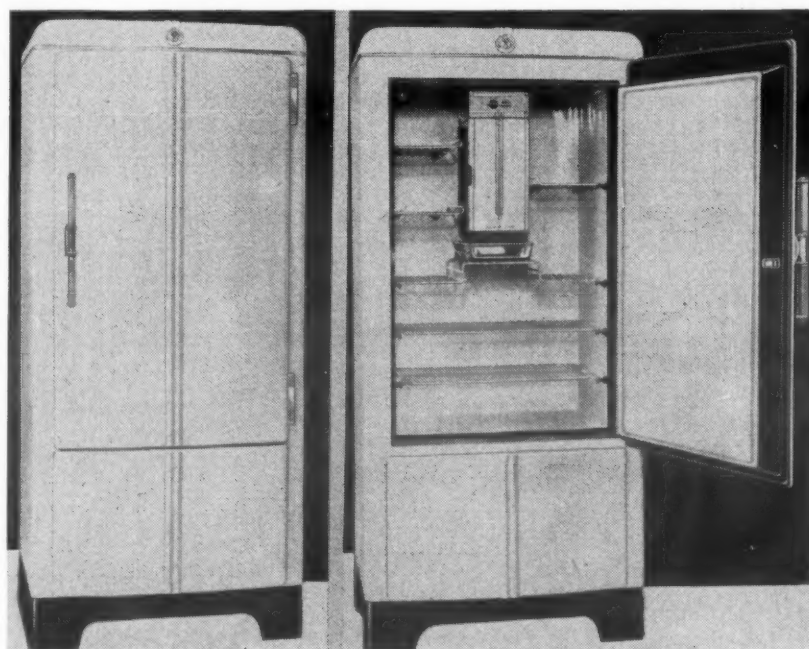


Model No.	Storage Capacity Cu. Ft.	Shelf Area Sq. Ft.	No. Trays	No. of Cubes	Lbs. of Ice	—Exterior Dimensions—		
						Height	Width	Depth
S-46	4	7.5	2	42	...	50	24	21 1/2
S-66 (SD-646)	6	11.8	3	84	...	55 1/2	29 1/2	26
S-86	8	16.2	4	105	9 1/2	60 1/2	33 1/2	26 1/2
CB-596	5	9.5	5	105	9 1/2	52	28 1/2	26 1/2
CB-696	6	12.0	5	105	9 1/2	57	30	26 1/2
CB-796	7	15.8	5	105	9 1/2	60 1/2	30	27 1/2

Model SD-646 is the same as the S-66, except that it is equipped with the Gibson Freez'r Shelf. All CB models have this feature. Exterior on all models is lacquer; interior on all models is porcelain. The

CB models, in addition, are also available in porcelain exterior finish. All models are insulated with Balsam Wool, and are equipped with the Gibson hermetic Monounit.

## Universal Cooler



Model No.	Capacity Cu. Ft.	Shelf Area Sq. Ft.	Ice Cubes	Lbs. of Ice	—Exterior Dimensions—		
					Height	Width	Depth
UC-4	4.3	8.26	54	3.3	53 1/2	23 1/2	24 1/2
UC-6	6.31	13.0	84	6.0	58 1/2	30 1/2	25 1/2
UC-8	8.07	15.4	140	10.0	67	30 1/2	25 1/2

Exterior finish is Dulux on all models; interior finish is acid-resisting porcelain. UC-6 and UC-8 have automatic interior electric light, rubber ice cube tray, adjustable large shelf for greater tall bottle

capacity, and push-pull vertical touch bar door handle. All models have flat mesh shelving to prevent tipping of food containers, and dual control cooler with no visible frost accumulation.

## Miller to Buy Appliances For Hutzler Bros.

BALTIMORE—John S. Miller, formerly district manager for the Apex Rotarex Corp. in the New York and Washington districts, has been appointed manager and buyer for the refrigeration and major appliance activities of Hutzler Brothers Co., local department store.

Bancroft Williams, who has been manager and buyer for the refrigeration, appliances, and housewares activities at Hutzler Brothers, now has charge of housewares section only.

## VIRGINIA SMELTING Company

WEST NORFOLK, VIRGINIA  
131 STATE ST. BOSTON-76 BEAVER ST. N.Y.

EXTRA DRY  
**ESOTOOL**  
LIQUID SULPHUR DIOXIDE  
**V-METH-L**  
VIRGINIA METHYL CHLORIDE



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PAYMENT in advance is required for advertising in this column.

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### POSITIONS AVAILABLE

WANTED. COMMERCIAL REFRIGERATION MAN. Manufacturer has excellent opening for a man thoroughly experienced in commercial refrigeration sales engineering and sales application work. Must also be fully capable of handling office routine and correspondence pertaining to all phases of commercial refrigeration and air conditioning. Give full information about yourself, also references, which will be held in strict confidence and not used without first contacting you. Our employees know of this advertisement. Box 762, Electric Refrigeration News.

COMMERCIAL SALES OPPORTUNITY. Experienced, capable men wanted to take charge of distributors' commercial and retail operations with small weekly advance and substantial bonus arrangement. Current openings available in Washington, D. C., Rochester, N. Y., and other good trading areas. Include full details in first letter. Box 763, Electric Refrigeration News.

### POSITIONS WANTED

AVAILABLE. Nationally known radio manufacturer for whom I travel New England and northern New York has just given me special permission to add refrigeration, washer, air conditioning or allied line with which I am thoroughly familiar. Have splendid jobber and dealer contacts, excellent references and can sell. Box 764, Electric Refrigeration News.

### FRANCHISE AVAILABLE

JOBBER representation to handle nationally advertised line of ice cream cabinets and replacement parts for all makes of cabinets. Must be able to carry small stock on exclusive representation. Territories available west of Mississippi River and in the South. Write full details. Box 759, Electric Refrigeration News.

FEDERAL REFRIGERATOR CORP., 57 E. 25th St., New York, offers brand new Mullins, 3 tray porcelain evaporators, complete with trays, dividers, porcelain hanger, front porcelain baffle, \$5.95. Brand new American Radiator expansion valves, \$2.35. Thermostatic expansion valves, \$3.55. Automatic door lights complete 55¢. Refrigerator shelving all sizes 10¢ to 50¢.

### EQUIPMENT FOR SALE

FOR SALE: 1 Frigidaire compressor complete with 1 Hp. 1 phase Century motor No. 583139C perfect condition .....\$90.00 One 3 tray Frigidaire boiler, \$7.00. Four 2 tray Frigidaire boilers.....\$3.00 each 8 Ranco cold controls new.....\$2.50 each COMMODORE ELECTRIC COMPANY 521 North Wells Street, Chicago

### PATENT FOR SALE

REFRIGERATOR UNIT DEFROSTER patent for sale. Eliminates turning off current to melt accumulation of ice on cooling unit and rising refrigerator temperature. Very sanitary. Eliminates recirculation of impure frost moisture from cooling unit and continually keeps low temperature in refrigerator. Box 760, Electric Refrigeration News.

### HERMETIC UNITS REPAIRED

HERMETIC UNITS rebuilt or exchanged: Majestic all models \$17.50, Servel \$22.50, G.E. \$25.00 and \$32.50, other standard makes \$19.50. Majestic Hermetic Dome assembly \$12.50. Majestic standard compressors \$6.50, thermostat or cold control exchange \$2.50. Other prices on request. Six months' guarantee. Wholesale only Refrigeration Products, Inc., 122 W. Illinois St., Chicago, Ill.

GENERAL ELECTRIC SEALED UNITS—repaired, rebuilt, exchanged. Guaranteed service. Our modern shop is especially equipped to efficiently repair these units. Prices low and workmanship the best. Give model number when writing. Immediate service. Rex Refrigeration Service, Inc., 446 East 79th St., Chicago.



## MAN POWER

MAN POWER is one of the most important problems of your business. You need men who know what to do and how to do it.

We perform a definite service in the refrigeration field . . . supplying MAN POWER to the industry. We train men in all phases of installing and servicing refrigeration equipment. We train men to become useful, permanent members of the industry. You will find U. E. I. graduates occupying some very important positions in leading manufacturing, distributing, and servicing companies. We solicit inquiries from those desiring the services of trained men or personal training.

Tenth Year

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date service. Rex Refrigeration Service, Inc., 446 East 79th St., Chicago.

HERMETIC SEALED UNITS REBUILT and some exchanged; Majestic, all models, \$20, G.E. \$25 & \$32.50; Gibson sealed and open type \$20; Bohns \$20; all guaranteed; F.O.B.; other prices on request; wholesale only; prompt service. Standard makes of refrigerators complete, rebuilt and refinished like new, sold. We also export. We are in a position to represent for a few additional manufacturers' factory service in the Metropolitan area. New York City's largest service organization. Interboro Refrigerator Co., 350 Pearl St., Brooklyn, N. Y.

### REPAIR SERVICE

MOTORS—Three phase, two phase, or single phase repulsion induction, rewound, including brushes and bearings when necessary. 1/4 H.P.—\$9.45, 1/2 H.P.—\$10.75, 3/4 H.P.—\$11.95, 1 H.P.—\$15.25, 1 1/2 H.P.—\$18.25, 2 H.P.—\$22.50. Motors returned like new mechanically and in appearance. South Shore Electric Co., 8437 South Chicago Ave., Chicago, Ill.

### SCHOOLS

AIR CONDITIONING—REFRIGERATION. Taught by a combination of classroom and laboratory work. Over 60 lectures and laboratory set-ups. 5,000 square feet, well equipped. Tools and text furnished. Installation, service, design, engineering. Three months' full time course available. Detroit School of Refrigeration, 6517 Grand River Ave., Detroit, Mich.

### PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. Van Deventer (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

## Questions

### Sales for 1935

No. 2657 (Association, Illinois)—"We are interested in having figures on sales of household refrigeration for the year 1935 or for any portion of the year if complete figures are not available."

"Any data you may be able to send us will be very much appreciated."

Answer: Figures on sales of household refrigerators for the year 1935 are published on page 1 of the Jan. 1, 1936, issue of ELECTRIC REFRIGERATION NEWS.

### Descriptions of Installations

No. 2658 (Advertising Agency, Ohio)—"We are anxious to receive as soon as possible tear sheets showing each of the air-conditioning articles you published in 1935, having to do with sales in specific cities similar to the articles checked on the enclosed tear pages taken from your issues of Sept. 4 and 18."

Answer: Articles describing in detail specific air-conditioning installations were published on the pages of various issues of ELECTRIC REFRIGERATION NEWS during 1935 as listed herewith (in many cases there is more than one story on a page):

Jan. 23—page 17; Feb. 6—pages 1, 10, 11, and 12; Feb. 20—pages 1 and 4; Feb. 27—pages 1, 12, 13, and 17; March 6—page 16; March 13—pages 1, 13, and 15; March 20—pages 1 and 20; March 27—pages 1, 6, 9, and 13.

April 3—page 20; April 10—page 24; April 17—page 8; April 24—pages 1 and 12; May 1—pages 1 and 13; May 15—page 20; May 22—pages 1, 10, 11, and 17; May 29—page 6.

June 5—pages 8 and 9; June 19—pages 1, 5, and 7; June 26—pages 1, 7, and 9; July 3—pages 1, 7, and 9; July 10—pages 1 and 4; July 24—pages 6 and 9; July 31—pages 9, 10, and 11.

Aug. 14—pages 1 and 13; Aug. 21—page 10; Aug. 28—pages 1 and 11; Sept. 4—pages 6 and 7; Sept. 11—pages 6, 7, and 11; Sept. 18—pages 1 and 10; Sept. 25—pages 14, 15, and 19.

Oct. 9—page 17; Oct. 30—page 12; Nov. 6—pages 14, 15, and 16; Nov. 20—page 16; Nov. 27—pages 9, 11, 13, and 16; Dec. 11—pages 9, 12, and 13; Dec. 18—page 10; Dec. 25—page 7.

### Kerosene Refrigerator

No. 2659 (Dealer, Georgia)—"We want to get a manufacturer to make for us our own brand of kerosene-burning refrigerators, but we know only a very few concerns in that line."

"If you are familiar with such companies that may be interested, we will appreciate your sending us their names and addresses."

Answer: Manufacturers of kerosene-operated refrigerators are: Electrolux Refrigerator Sales Division of Servel, Inc., Evansville, Ind.; the Crosley Radio Corp., Arlington St., Cincinnati, Ohio; the Gibson Electric Refrigerator Corp., Greenville, Mich.; Perfection Stove Co., 7609 Platt Ave., Cleveland, Ohio; and the Allyn Refrigerator Corp., c/o Cleveland Tractor Corp., East 193rd St., Cleveland, Ohio.

There is also a gasoline motor-driven refrigerator which is manufactured by the Waukesha Motor Co. of Waukesha, Wis.

### Book on Porcelain Enamel

No. 2660 (Manufacturer, Italy)—"In an issue of your paper we saw (under the heading Books) the review of the book of Andrew I. Andrews 'Porcelain Enameling.'"

"The address of the editor, The Twin Printing Co., we thought was Minneapolis, St. Paul."

"By means of the Italian Post we sent to this address \$8.00, but the letter has been returned to us marked 'unknown.'"

"We beg you to write us, or to write to the editor of the publication to write us, the address so that we can buy the book in which we are interested."

Answer: The book, "Porcelain Enameling" by Andrew I. Andrews, which was reviewed in the June 26, 1935, issue of ELECTRIC REFRIGERATION NEWS, is published by the Twin City Printing Co. of Champaign, Ill.

### Refrigerator Trucks

No. 2661 (Dealer, Ohio)—"Will you kindly furnish us with the names of some manufacturers of trucks for handling refrigerators. We are General Electric dealers and would like to purchase a hand truck suitable for handling both our flat and Monitor Top jobs."

Answer: Manufacturers of hand trucks are listed on pages 330 and 331 of the 1935 REFRIGERATION AND AIR CONDITIONING DIRECTORY.

### Comparative Specifications

No. 2662 (Dealer, Pennsylvania)—"We are writing to ask if it will be possible for us to secure three copies of Competitive Specifications from ELECTRIC REFRIGERATION NEWS."

Answer: We no longer have any copies of issues of ELECTRIC REFRIGERATION NEWS containing specifications information as our stock of these was sold out some time ago.

On or about March 1, 1936, however, we are publishing a book entitled REFRIGERATION AND AIR CONDITIONING SPECIFICATIONS. This volume will include detailed specifications for all models and makes of household and commercial refrigeration and for air-conditioning systems. The household specifications section will also include data on "orphan" makes of refrigeration machines. Cost of the specifications book is \$3.00 per copy.

### Ala. Power's 'Cost' Meter

No. 2663 (Distributor, Arizona)—"In your Dec. 25 issue of ELECTRIC REFRIGERATION NEWS, page 2, there is an item describing a new device which measures the current flow of electricity, as this article states, 'in cents, instead of the usual scale,' which is used by the Alabama Power Co."

"The article also states that this item is being used at cooking schools and at other sales demonstrations."

"Can you give us the name of this meter, and where it can be bought, as we would like very much to get one of these to use as a merchandising plan for refrigeration."

"We shall greatly appreciate your early reply to this letter giving us whatever information you have available on this item."

Answer: We have just received the following letter from the Alabama Power Co. describing the "cooking meter" and giving information about where it can be obtained:

"In reply to your letter of Jan. 18, concerning our 'cooking meter', used in demonstrating electric cookery to answer the question of cost in terms of cents in a way that is readily understood by our customers, I am attaching hereto a picture and am giving below a brief description."

"The meter is constructed in two units and the picture shows the indicating unit which was constructed by using an old demand meter mechanism of the solenoid and ratchet type. The case is approximately 24x26 in. and the dial is set back from the glass face about an inch to permit interior illumination. The dial was calibrated with the idea of using a nickel as the value of a complete revolution of the hand, and based on the 2-cent step of our rate, this meant two and one-half kilowatt hours per revolution. Following the other four points of 1, 2, 3, and 4, cents were laid off and further divided into mills."

"The other unit consists of a standard 3-wire watt-hour meter mounted in a box equipped with standard cord, plug, and receptacle for connections. A standard register with demand meter contacts was used with a special cam."

"These contacts, of course, energize the solenoid in the indicating unit and cause the hand to be advanced in proportion to the speed of the disc. The number of contacts on the cam and other ratios have to be worked out, depending on the meter used and indicating mechanism."

"The Duncan Electric & Mfg. Co. have now available a smaller but self-contained meter for this purpose, either 2-wire or 3-wire, and I understand that they will calibrate the dial in terms of any units that you may desire. This company is located in LaFayette, Ind."

## The Buyer's Guide

Suppliers Specializing in Service to the Refrigeration and Air Conditioning Industries

### KOCH COMMERCIAL REFRIGERATOR CABINETS

All types and sizes of heavily insulated refrigerators and display cases.

### WANTED—DISTRIBUTORS and SALES AGENTS

Attractive sales proposition. Some good territories available. Many exclusive features. Write for information, and submit your qualifications.

KOCH REFRIGERATORS, North Kansas City, Mo.

### 3600 Line of Display Cases—

These cases afford more square feet of display space than many other cases considerably larger. Two sizes are available—14 and 19 1/4 square feet of display—and you have your choice of Porcelain or DuLux finish.

Among the features are extra large rubber composition sliding doors; extra height doors for storage department; full view of illuminated display section; removable intermediate shelf, and 3" approved insulation.

For real convenience, economy, room and accessibility these cases cannot be equaled. Sold only through Dealers and Jobbers.

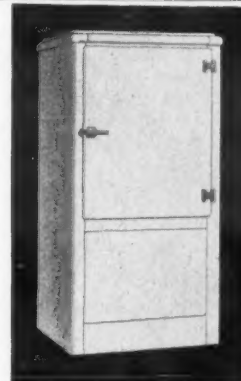
GLOEKLER MANUFACTURING COMPANY  
429 Fourth Avenue, Pittsburgh, Pa.

## STEELCRAFT REFRIGERATOR CABINETS

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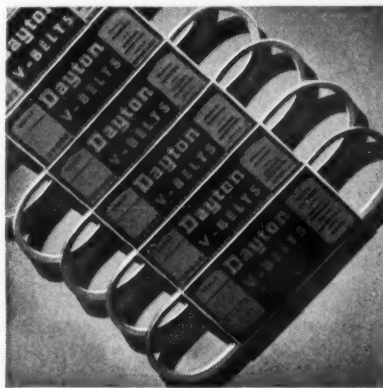
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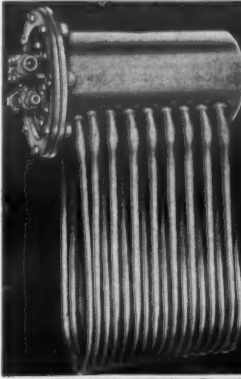
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